✓ 670.5
V. 78 pt. 2

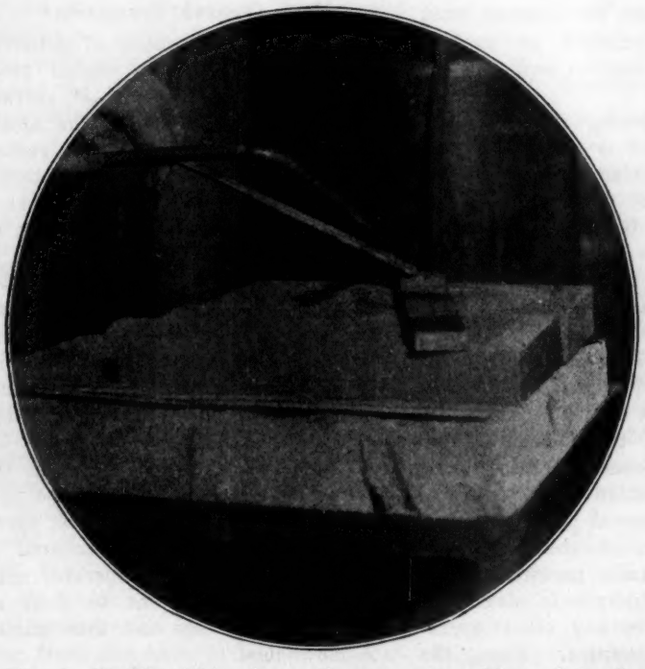
Applying Stellite to Machine Parts, Tools and Dies by Blow Torch

Deposition of Metal by Oxyacetylene Provides Extremely Hard Wear Resisting Surfaces — Method Affords a Means of Salvage for Worn Out Parts— Technique of Coating Operation Is Outlined

Fig. 1—Depositing stellite on a support bar with oxyacetylene

STELLITE, an extremely hard nonferrous alloy developed by Elwood Haynes in 1908 and made a commercial product in 1914, has found wide use in the metalworking industries for several years. Its widespread application for metal cutting is due to its hardness at a bright red heat, together with its resistance to severe abrasion. In addition, it is highly resistant to the action of almost all acids and chemicals. It is an intrinsically hard cast metal, requiring no heat treatment—its temper being inherent and permanent. It takes a high silver-white polish and retains it. Being nonmagnetic, it does not adhere to other metals. Two ground surfaces of the metal have an extremely low coefficient of friction.

Commercial stellite is an electric furnace product containing 45 per cent cobalt, 30 per cent chromium, 20 per cent tungsten and 5 per cent of other metals; iron being present only as an



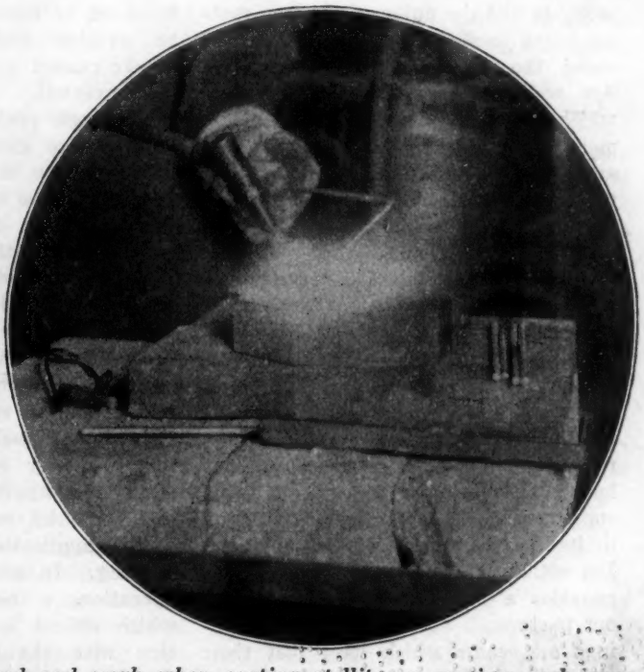


Fig. 2 (Left)—This shows the correct position of torch, rod and work when coating stellite on medium and large surfaces. Fig. 3 (Right)—Building up stellite on a forming die. A reducing flame is employed

impurity. Proper proportions of the component metals are mixed in a crucible and melted in the furnace. After the melting down, it is transferred to ladles and poured into molds. It does not oxidize deeply even at a white heat.

Because of its lack of machinability, the material has been little used for making complete tools or machine parts. Ordinarily, small sections of it are attached to the steel tool or die by one of two means, namely, brazing or electric arc welding. One of the earliest practices was the brazing of pieces of the metal of the proper size and shape to the surface of the steel, standard fluxes being used and both surfaces kept clean and smooth. This practice is not as economical of material as are other methods and the union of the two metals is not sufficiently strong to withstand the stresses in drilling tools. Arc welding, however, gives a bond which is strong and permanent. This method is useful where both the steel and stellite can be preheated and where the size and shape of the work permit manipulation of the welding apparatus.

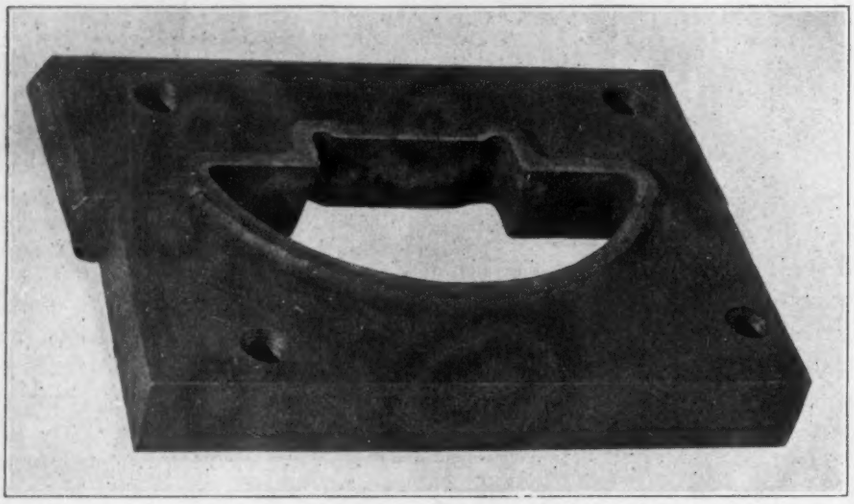


Fig. 4—This illustration shows a hot trimming die for making an automobile crankshaft counterbalance. The cutting edge has been reinforced with stellite

The most recent development brought out by the manufacturer of the metal, the Haynes Stellite Co., New York, is a method for depositing a coating or surface of stellite to metal parts by means of the oxyacetylene flame. The process can be carried out with the electric arc welder but not as simply or economically, consequently this discussion will be limited to the oxyacetylene method. Deposition of stellite in this manner provides a means for salvaging worn out parts such as dies, scrapers, bushings and cams which have lost their size. To build up these worn spots and grind them to original size is a job which can be done at nominal cost. A second economy results in the increased life imparted to the steel by reinforcing the surfaces receiving the most wear.

As wear necessitates, the surface can be rebuilt from time to time.

Blowholes Must Be Avoided

By means of the oxyacetylene blowpipe, stellite can be applied to almost every metal in common use. Any grade of steel, regardless of the carbon content, alloy steels of all compositions, cast iron, semisteel and malleable iron can be surfaced successfully. By a process which differs in some respects from the one to be described, copper also may be coated. To obtain satisfactory surfacing, blowholes on or beneath the coating must be avoided and checks or surface cracks caused by uneven cooling must be prevented.

Thorough preheating and annealing of the base metal is most essential. Although the melting points of steel and stellite do not differ greatly and the coefficients of linear expansion are approximately the same, stellite goes from the liquid to the solid state more quickly than steel, when both are cooled in air. Therefore, unless the steel is preheated evenly, kept up to heat and cooled slowly, internal strains will be set up which are great enough to check the deposited surface. Proper preheating also facilitates the application of the metal and the quick removal of scale.

The application of stellite is not welding. In actually performing the operation, a technique is developed which differs from any other operation with the blowpipe. First, the flame should be almost parallel to the surface being coated and 2 or 3 inches of the rod should be enveloped by the flame. This keeps the rod hot so that when the base metal just begins to sweat the metal can be flowed on quickly. Speed is essential. Furthermore, the horizontal flame lessens the possibility of heating too deeply into the base metal and forming a crater, which causes trouble in obtaining a clean surface of pure stellite. A clean deposited surface, free from blowholes or iron alloy, is the effect that must be obtained. The only other precaution to be emphasized is that all scale, dirt and foreign material must be removed before the surface is applied. If allowed to remain, such material will cause blowholes and render the stellite surface unfit for most purposes.

Welders preferably should be experienced in welding cast iron and bronze welding cast or malleable iron. A general knowledge of welding, however, is acceptable provided the operator is careful and conscientious in his work. Before being allowed to perform any regular production or reclamation work, each welder should be required to pass the following qualification tests. He should be given sections of scrap steel or cast iron plate or both, if the requirements of the work include both metals. The plate dimensions where practical should conform to the average type of work to be done. Plate ½ x 2 x 3 inches may be used satisfactorily for test specimens. The plates should be properly prepared and the test specimens made under the supervision of the welding foreman, following instructions given later.

Must Observe Precautions

The test should consist of grinding off the surface of the coated piece and examining the ground-off surface for blowholes or checks. The specimen then should be cut with a rubber wheel and the fusion of the stellite to the parent metal noted. A satisfactory test specimen should show no blowholes or checks in the surface of the stellite and thorough fusion with the parent metal. In view of the fact that the majority of welders will have had little or no previous experience in applying the metal, it is not expected that they will make satisfactory test specimens on first trial. Therefore, at the discretion of the welding foremen, they should be permitted to submit additional test specimens. It should be remembered in this connection that the operator must observe the precautions to float all scale to the surface and thus eliminate blowholes.

A special stellite welding rod is

manufacturer should be used for all types of work. Rods of ¼-inch diameter should be used when the surface to be covered is of small area or the parent metal of thin section. On heavier material or large surfaces a 5/16-inch rod may be used. Any blowpipe and set of regulators manufactured by a reputable company may be used for this work. The size of the blowpipe to be used is dependent upon the dimensions of the piece to be coated. A tip one size larger than is recommended for welding steel should be used as the reducing flame employed lessens the effective blowpipe temperature. The use of flux is unnecessary and not recommended. When employed in special cases, however, the flux should be used in small quantities.

The same apparatus should be used in preheating the parent metal preparatory to applying the stellite coating as is customary in general preheating practice. Charcoal, charcoal and gas, oil or gas furnaces may be employed. On small pieces, the blowpipe may be used for preheating purposes. For the occasional or bulky application, a temporary charcoal and firebrick furnace will prove satisfactory. Where the work is of a repetitive nature, however, a permanent gas or oil furnace may be employed more economically. Because of its highly localized heating effect, coke should not be used for preheating purposes.

Where a temporary firebrick furnace is used, the annealing of the piece may be accomplished in it. Otherwise, a box or bin filled with some heat resisting material such as powdered lime, asbestos, or fiber cement should be provided. This bin should be constructed so as to enable the piece to be placed within it and completely submerged in the filler.

Base Metal Ground Clean

The parent metal should be ground so that the portion to be coated is free from all oxide and scale. Where the operation consists of building up a die corner, the piece should be beveled in a cup shape as shown in Fig. 5. This design facilitates the building-up operation and gives a joint of maximum strength. The stellite should be thoroughly fused with the parent metal and be free from blowholes, air pockets, oxide inclusions or other defects. A reinforcement of 1/16-inch should be allowed for grinding purposes.

All oxide, scale or other foreign substance should be removed by grinding from the area to be covered. If grinding facilities are not available, the surface may be cleaned with a file or wire brush but this method often leaves scale or other detrimental material which later must be floated during the coating operation. Where the piece is of such design that the area to be cleaned is inaccessible for grinding, flux may be used just preparatory to applying the stellite. The piece should be lined up in much the same manner as in cast iron welding, the area to be coated being aligned in an approximately horizontal plane and supported in such a way as to prevent warpage. If the piece is of such a nature that it cannot be coated in a single setting, it may be turned as many times as necessary; care being taken during each setting to assure the fulfillment of the above necessary conditions of alignment.

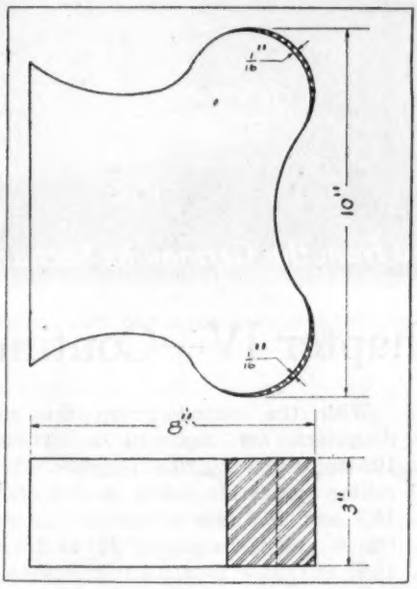


Fig. 5—In building up a die corner, the piece should be beveled in a cup shape as shown

After the surface of the piece has been cleaned it should be preheated. Whether a temporary or permanent furnace, a gas torch or merely the blowpipe is used will depend entirely upon the size and shape of the piece. The work should be slowly and evenly brought up to a dull red heat or a temperature of about 1200 degrees Fahr. It is essential that this temperature be obtained before the coating of the surfaces is started. When preheating with the blowpipe, a neutral flame should be used until the piece approaches the proper coating temperature.

The piece should be maintained at an even heat throughout the coating operation and at the approximate temperature arrived at in preheating. Any opening in the furnace other than the area being built up should be covered with asbestos or other insulating material. Where a permanent preheating furnace is used and the piece is removed from it during the coating operation, the piece should be covered with asbestos paper to protect it from drafts and uneven cooling.

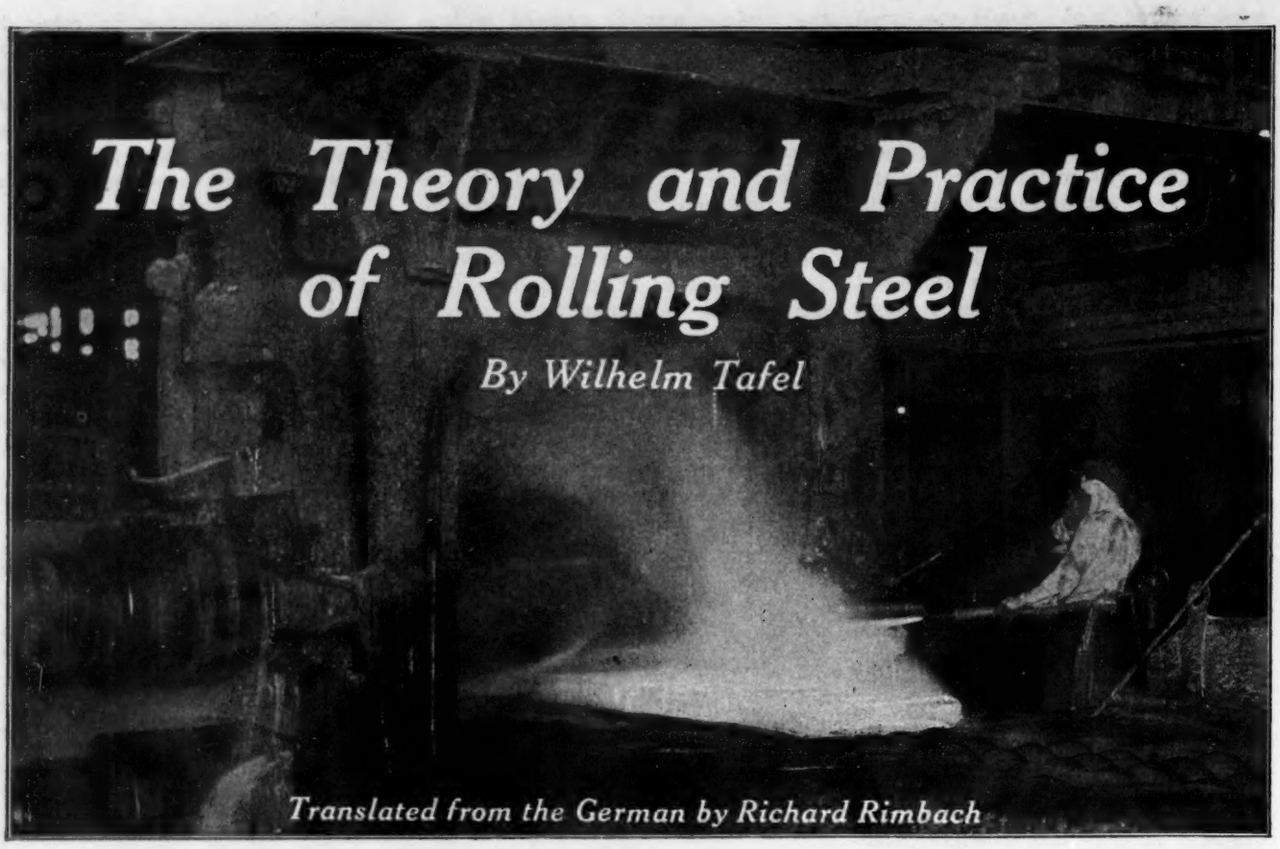
(To be Concluded)

Conducts Conference on Electric Heat

What is believed to be the first industrial electric heating conference ever sponsored by an engineering school, recently was conducted by the engineering extension department of Purdue university, Lafayette, Ind. At this conference, which was directed by the school of electrical engineering, it was brought out that possibilities of electric heating in connection with industrial processes barely have been touched upon thus far and that within the next decade central power stations in industrial districts are likely to add as much electrical heating load as they now have motor load. About 150 representatives from many industries in Indiana and the district surrounding Chicago attended the meeting.

The program covered the entire field of electric heating and included papers and demonstrations of equipment ranging from the low temperature automatically controlled baking oven to the high temperature arc furnace for melting brass and steel. Electric heat was recommended for many processes in spite of the excess cost of electric power. One speaker considered the cost of energy at 2 cents per kilowatt-hour to be comparable to oil at 6 cents per gallon and gas at 50 cents per thousand cubic feet.

Alloy steel and brass were melted electrically and poured before the visitors and various ovens, furnaces and melting pots were operated and controlled. Principal speakers at a banquet which was held on the evening of March 17 were David E. Ross, vice president and general manager, Ross Gear & Tool Co., Lafayette, and J. L. Bray, professor of chemical engineering, Purdue university. Companies which exhibited and operated at the conference were: General Electric Co., Schenectady, N. Y.; Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.; Detroit Electric Furnace Co., Detroit; Pittsburgh Electric Furnace Corp., Pittsburgh; Young Bros. Co., Detroit; Bristol Co., Waterbury, Conn.; Leeds & Northrup Co., Philadelphia; Brown Instrument Co., Philadelphia; and Taylor Instrument Co.'s, Rochester, N. Y.



The Theory and Practice of Rolling Steel

By Wilhelm Tafel

Translated from the German by Richard Rimbach

Chapter IV—Continued

CONTINUING the calculation, which was presented in the last installment, the rolling speed from pass 17 would be 24.3 feet a second. With u equalling 600 this speed corresponds to a roll diameter of 9.252 inches. The diameter is chosen because of the wear which is assumed as 15 per cent and not over 9.449 inches. This will permit a diameter of 8.071 inches in the worn out state. Consequently, the speed, 24.3, is increased in the relation of 9.449 ÷ 9.252 of 24.6. The pass time will change to 756.9 ÷ 24.6 or 31.5 seconds and s_{16} to 31.5 (24.6 — 21.3) = 103.3 feet. As smaller diameters are not desired after these four stands, a new group with a lower revolution a minute must be provided with special gearing and separate drive shaft. If between passes 16 and 17, because of the wire length having become shorter, a secondary loop length of 78.7 is assumed or an actual length of 98.4 feet, then

$$a_{16} = 18.2 \frac{1}{1 - \frac{78.7}{700.8}}$$

which with 11.024 inches diameter requires a roll speed of 440 revolutions a minute.

With the second group the roll diameters are assumed as 11.024, 10.630, 10.236 and 9.843 inches. The rolling speeds are taken as 21.0, 20.3, 19.5 and 18.7 feet a second; the entrance speeds in passes 16 to 13 as 16.7, 14.1, 14.4 and 12.6 feet a second, and the secondary loops as 83.0, 89.8 and 55.4. If another subdivision is required, that is, a third group with a lower speed, the rolls in pass 12 should be 9.449 inches diameter, the speed from there down being:

$$\frac{9.449 \times \pi \times 440}{12 \times 60} = 180.4 \text{ ft./sec.}$$

If this is desirable, the volumes per second passing through the rolls are determined. After calculating the volume $V \div m = q \times a$, which would leave each roll per second if only one wire were in the pass, the result is included in the horizontal line No. 14 of Table V. It must be obvious that if the same volume should pass through each stand in the unit of time as goes through the last stand, that is, 40.866 cubic inches a second, that four wires will traverse the rolls side by side in passes Nos. 18 and 19, three in Nos. 16 and 17, and two from there down to pass No. 13. It is advisable to provide an extra pass, 5, 4, and 3 side by side and equip them with guides. Roll No. 12 with a speed of 440 revolutions per minute, a minimum diameter of 9.449 inches and with one wire per second, already has 180.4 (rolling speed) x 0.233 (cross-section) or 50.344 cubic inches a second. This volume is 23 per cent more than is produced by roll No. 20, representing an excess roll speed of about 20 per cent. For roll No. 9 $V = 180.4 \times 0.729 = 158.661$ cubic inches or almost four times the amount required.

Such speeds are unnecessary and consequently call for further calculation. A possibility would be to include rolls Nos. 12 and 11 in Group II with 440 revolutions per minute and to add Nos. 10 and 9 to the continuous rolls. Stand No. 11 then would have a volume a second of 180.4 x 0.310 or 73.838 cubic inches. Or a third group with stands Nos. 9 to 12 can be arranged. To avoid excessive speeds the stock is passed from group I to group II with the smallest possible loop of 42.7 feet effective or 23 feet theoretical. This gives for a_{12}:

$$12.6 \frac{1}{1 - \frac{23}{164}} = 14.8 \text{ ft./sec.}$$

From this the entrance speed e_{12}

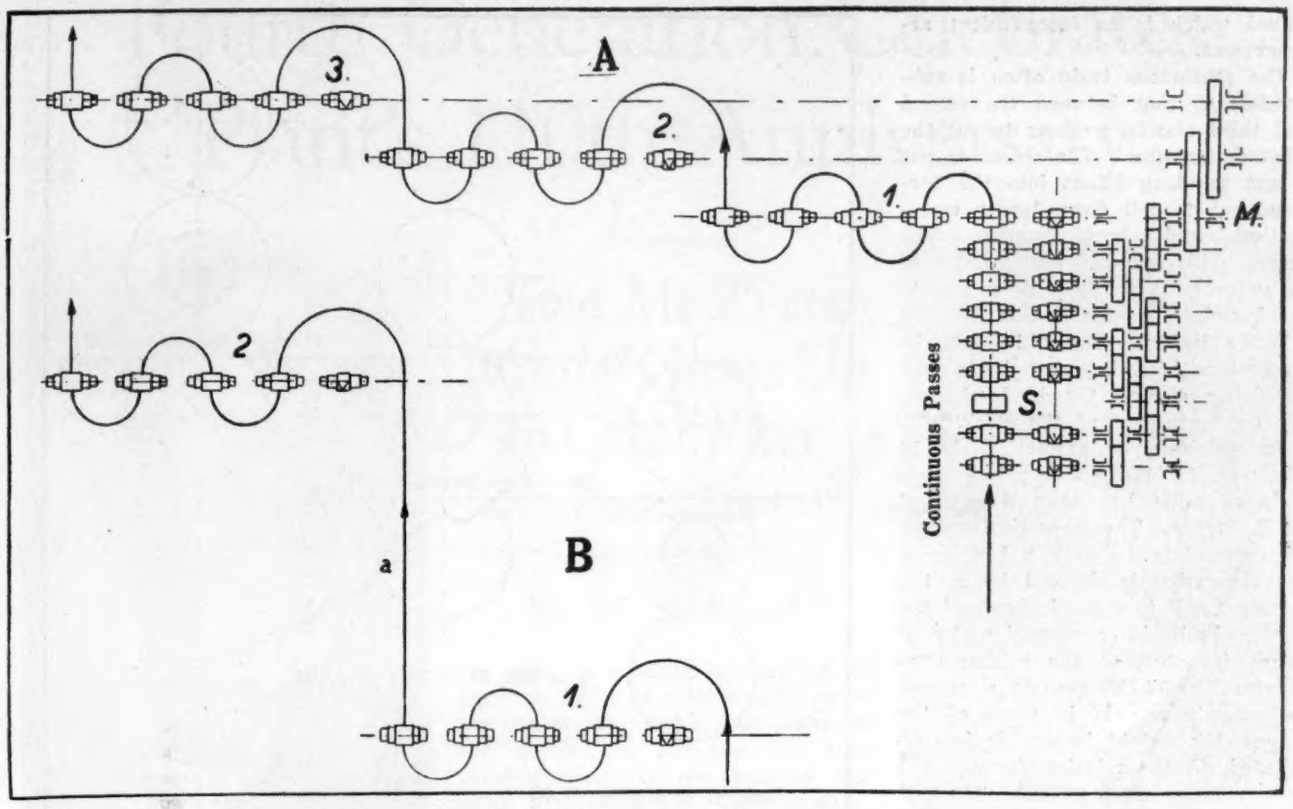


FIG. 103—(*A*), ARRANGEMENT OF THREE SEPARATE AND OPEN ROLL TRAINS INSTALLED IN A STAGGERED POSITION. (*B*), ARRANGEMENT OF TWO OPEN ROLL TRAINS INSTALLED ONE IN FRONT OF THE OTHER

$= 14.8 \div 1.45$ or 10.2; $a_{11} = 14.3$; $a_{10} = 14.8$, and $a_9 = 16.4$ feet a second. A speed of 300 revolutions per minute and diameters of 11.220, 10.827, 11.220 and 12.598 inches are assumed. In order not to go up and down, the roll diameter of pass No. 3 is taken as 11.220 and pass No. 1 as 12.598 inches. The speed at pass No. 11 and the loop change between passes 12 and 11, and 11 and 10 are given in Table V. In filling in the volume, *V*, in the horizontal line 16 of Table V, the amount always should be larger than in the finishing pass. The volume with roll No. 15, is 40.28 cubic inches instead of 40.89 cubic inches. An equalization would be possible by increasing the roll diameter to 11.024 inches. If this smaller volume is permitted on one stand, it denotes a choking of the capacity will take place at this point. In other words, the capacity is not determined by the finishing pass of the train, but by pass No. 15. This moderation appears unimportant when the reserve production of the finishing roll is considered.

Therewith the open part of the train is determined. The only point remaining in the example is the unnecessarily high speed of rolls Nos. 13, 10 and 9. The speed cannot be changed unless the reductions are altered. The latter can be avoided by adding rolls Nos. 9 and 10 to the continuous part. Where the volume is larger than in the finishing pass, the stock must be held back correspondingly, so that the wires do not interfere with each other. Roll $x + 1$ is not immediately free, if the end of the wire has left the roll x. This requires pauses between the last mentioned period and the entering of the new wire into x. In this manner a velocity, which is too large, can be regulated.

For every group of the open and for every stand of the continuous mill separate spindle housings and especially drive shafts are required. These are driven in the case of the continuous group through gear transmissions by the same motor. Pitch line diameters and the number of teeth are determined from the exit speeds in Table V if the roll diameters of a group are made the same size. If the transmissions do not work as intended, corrections can be made by turning down the rolls. The final adjustment is accomplished by giving more or less draft in the individual stands. The exit speed of a roll thereby remains the same. The entrance speeds decrease with increasing draft and increase with decreasing draft. Therefore, if the tension of the stock is too strong, the draft in stand No. 2 is increased; if it is too weak causing the stock to twist or pulstate, less draft is given.

The drive shafts of the open mills either can be driven by separate motors, or a single motor. The most efficient arrangement is to install the trains so that the roll planes are close as shown at *A* in Fig. 103 and not stepped in front of one another as shown at *B* in Fig. 103. In the latter case the mills are spread out and it is difficult to loop the straight rod, *a* between trains 1 and 2. If the rod is subjected to tension, the previously mentioned inaccuracy due to the end not being drawn, extends over a larger part of the finished wire.

Moreover, long pieces increase the cooling. The arrangement shown at *A* in Fig. 103 requires that the jack shaft of train No. 2 does not interfere with train No. 1 and train No. 3 with trains Nos. 1 and 2, so that neither the roller nor the mechanical loop guides are disturbed. This can be accomplished if the shafts are driven through the bottom pinion. This is not recommended because in this case the teeth of the lower pinion receive double-tooth pressure and wear out faster. If the middle roll is driven the upper edge of the bottom roll of train No. 2 as shown in Fig. 104 must be set so high, that the floor 1 to 1.3 feet lower, is still higher than the shaft of train No. 3. Therefore different elevations of the floor for the three trains are re-

quired which is an inconvenient arrangement.

The continuous train often is subdivided, so that between the second and third stands, a shear to cut the billet is installed. The object is not to get too long billets into the furnace, but to roll down larger cross-sections and short lengths. The largest billet, which has been used for wire mills to date, according to the knowledge of the author, is 6.299 x 6.299 inches. The billet can be sheared without bringing it to rest by flying shears, the blade following the movement of the stock.

An efficiency of approximately 10 per cent for the power requirement of wire mills has been determined by H. Meyer. The theoretical energy requirement is $A_{th} = V \times k \times lnn$ if the elongation is denoted by n, the volume by V in cubic inches and the elastic limit in compression by k which for steel at the rolling temperature is 14,220 pounds a square inch maximum. If in place of the volume the weight in pounds is substituted, G, the relation for one ton is $V \times 485 = 2200 \times 1728$. Then, $V = 7811$ cubic inches and $A_{th} = 14{,}220 \times 7811 \times lnn = 3.5\ lnn$ kilowatt hours for one ton of steel. The different trains produce in each hour considering the working pauses $350 \div (24 \times 0.9)$ or 16.2 tons. The elongation of train No. 1 of the open mill amounts to $1.178 \div 0.233$ or 5.1; of train No. 2, it amounts to $0.233 \div 0.066$ or 3.5; and of train No. 3 it amounts to $0.066 \div 0.029$ or 2.2.

The natural logarithms of the elongations are 1.63, 1.25 and 0.79 respectively. The required theoretical output therefore amounts to:

Train No. 1 = 3.5 x 1.63 x 16.2 = 93 kilowatts
Train No. 2 = 3.5 x 1.25 x 16.2 = 72 kilowatts
Train No. 3 = 3.5 x 0.79 x 16.2 = 45 kilowatts

The effective power requirement therefore is 930, 720 and 450 kilowatts respectively, or a total of 2100 kilowatts. The efficiency of Meyer represents the theoretical available work measured at the switchboard and includes the power consumed during pauses in reduction. It is best to determine separately the power consumed by the mill running empty, otherwise $A_{th} = O$. For the continuous mill $n = 26.350 \div 1.179 = 22.3$ and $lnn = 3.11$. Therefore, $A_{eff} = 10 \times 3.5 \times 16.2 \times 3.11 = 1750$ kilowatt hours. Motors with a total kilowatt capacity, therefore, are required.

If the amount of coal is to be determined, 20 per cent should be deducted because in the working and rolling pauses no energy is used.

The efficiency of Meyer is more uncertain with wire mills than with other mills, because with the high bearing friction losses due to the many necks and the high speeds, and, with the small cross-sections toward the end of the wire mill, the actual deformation work in comparison to the bearing friction work must be small. In any event the calculations show that the Fink formula for the energy requirement to determine the size of the motors needed for a wire mill give a sufficiently accurate starting point.

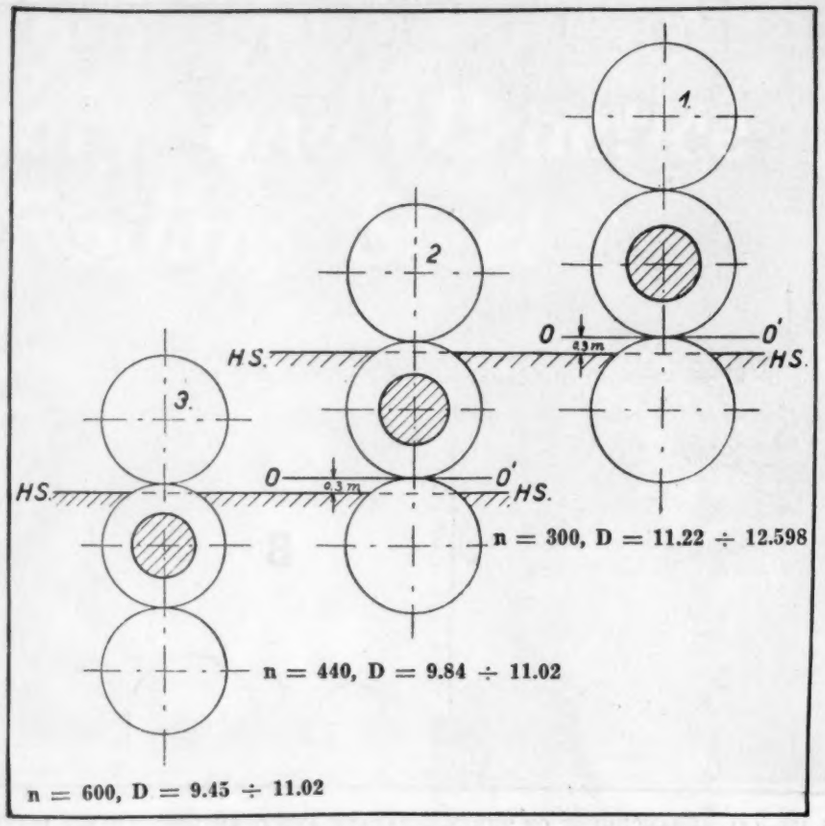


FIG. 104—ELEVATION OF THE ROLL TRAINS SHOWN IN FIG. 103

To Unify Wire and Sheet Metal Gages

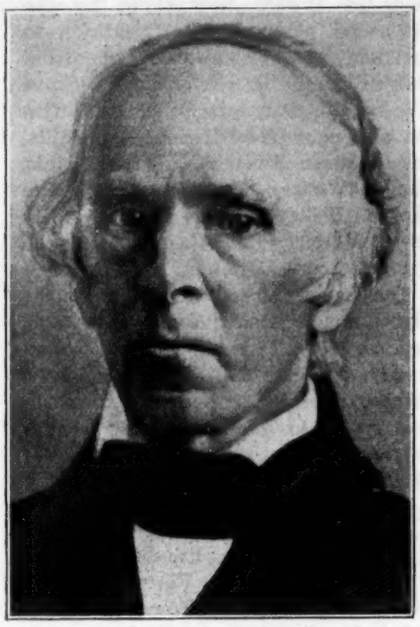
Confusion caused by 30 wire and sheet metal gage systems now in use in this country is to be eliminated as the result of a conference held in New York, March 18, and attended by representatives of 25 organizations interested in all phases of the subject, including wires, sheets and tubes of all metals. Unanimous decision was reached that the present gaging system had become intolerable and that industrial practice should be unified in a simple consistent plan. The detailed technical work will be in the hands of a sectional committee broadly representing all interested industrial groups and working under the auspices of the American engineering standards committee.

Opinion at the conference strongly favored the elimination of all gage numbers and the use of a simple system of designating sizes in decimals of an inch. Decision on the exact form of the system, however, was left to the sectional committee, the scope of whose work was outlined as follows:

"The standardization of a method of designating the diameter of metal and metal alloy wire; the thickness of metal and metal alloys in sheet, plate and strip form and wall thickness of tubing, piping and casing made of these materials; and the establishment of a standard series, or standard series of nominal sizes and of tolerances for wires, sheets, plates and strips."

Four fellowships in metallurgy and mining for 1926-27 are being offered by the School of Mines and Metallurgy, University of Missouri, and United States bureau of mines, Rolla, Mo. Each fellowship provides an income of $800 and is open to graduates who have the equivalent of a bachelor of science degree in mining, metallurgy or chemistry and who are qualified to undertake research work. The subjects to be studied are: Metallurgy of zinc; refractories for metallurgy of zinc; and physical metallurgy, including heat treatment.

Fourth Generation Celebrates Plant's 110th Anniversary



ROBERT TOWNSEND
—the original

"Send Me 25 cts. Worth" Grows Up to Great Rivet Business

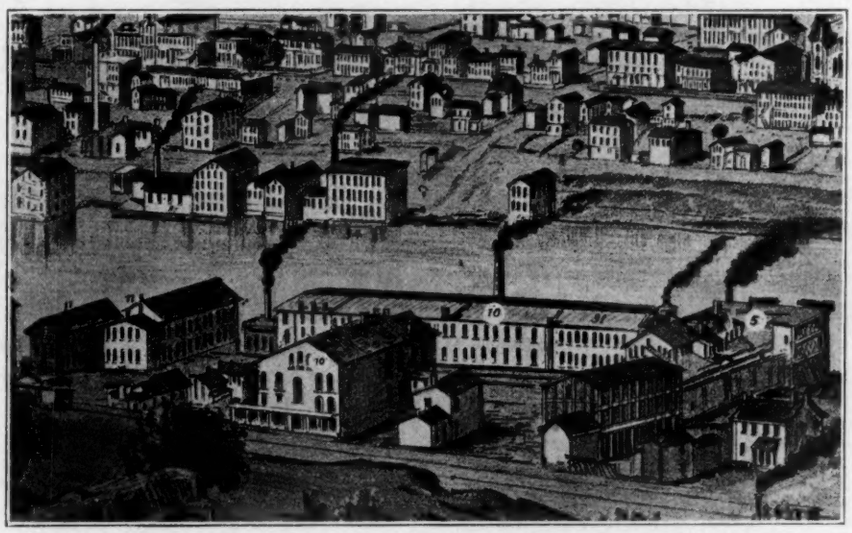
By W. H. Lloyd

ROBERT T. TOWNSEND
—of the fourth

WHEN in 1806 a young boy started from his home in Washington county, Pennsylvania, where he had been born 16 years previously, to gain his fortune, he little knew what was in store for him. The realization of his hopes for success undoubtedly far exceeded his imagination. The boy, slight of stature but courageous, headed eastward, accompanying his parents to Baltimore, Md. He obtained employment in the foundry of Hugh Balderson, where he remained 10 years. While there he conceived the idea of engaging in the wire drawing business, and mentally at least, laid the foundation for his later achievement. The boy was Robert Townsend, founder of the present Townsend Co., New Brighton, Pa., the oldest wire plant in America, and now owning and operating one of the largest rivet plants in the world. The company this year is celebrating the one hundred and tenth anniversary of its founding. The story of its growth is a romance of the American iron and steel industry.

At the age of 26, Robert Townsend "pulled stakes" and turned his footsteps westward. Settling in Pittsburgh in 1816, he went into business for himself with a small wire shop in Market street, between First and Second avenues. Property was acquired in 1828 on Beaver creek at Fallston, one of the oldest towns in in the Beaver valley near New Brighton, Pa.

The Pittsburgh property was retained for 64 years for the offices and warehouses but in 1880 they were removed to Fallston, now a station on the Pittsburgh & Lake Erie railroad. The town gets its name from the falls of Beaver creek created by a dam built by David Townsend, another pioneer, and cousin of Robert Townsend. This source of power had been organized by Beaver valley manufacturers, and the Townsend plant was operated by water. A portion of the present large establishment is operated by power from the same source. Many old and interesting documents are treasured and preserved in the archives of the company, including an invoice for keeping the mill race clean during the years 1827, 1828 and 1829. Another one is an early order received by the original Town-



"From an old print." The original plant of R. Townsend & Co. is indicated by the figures 10, *and the keg shop of M. T. & S. Kennedy is designated by the figure* 5.

send, the order reading as follows:

"Mr. Townsend—Please send me 25 cts. worth of wire neaid say No. 20 or 21 and charge to account—Saml Barnes."

A memorandum on the order indicates 1¼ pounds of No. 20 wire was supplied.

Other early orders include one from John A. Roebling, Feb. 24, 1845, for "1 M 1½ lb. tin rivets;" another from J. T. Kincaid dated Feb. 28, 1845 for:

6 M 8	oz. Tin rivets	@	26c
6 M 10	oz. Tin rivets	@	28c
2 M 16	oz. Tin rivets	@	33c

One from the same individual dated March 17, 1845 is for "2 M 3 lb. black rivets @ 58c per M," while a fourth, dated March 22, 1845 is from A. Henderson for "4 M 1¼ lb. rivets at 28c."

Mr. Townsend established the wire plant at Fallston at a time when no railroad served the property. Shipping in those early days was done by canal boat, Rochester, Pa., being the port. His son, W. P. Townsend, in about 1874, was interested in having a railroad built and secured for the Pittsburgh & Lake Erie railroad the right of way through the Beaver valley. Other industries developed shortly. such as a paper mill, two grist mills, an axe factory and a bucket factory. Fallston became the center of manufacture in Beaver county.

High-Points in the Townsend History

Erected first wire mill west of the Allegheny mountains.

Made and furnished first 3-strand twisted wire used by telegraph companies for the first telegraph lines over the mountains.

Was among first to co-operate with John A. Roebling (who incidentally learned his trade from Robert Townsend) in demonstrating the advantages of wire in engineering construction. Constructed cables for the first incline railway over the Allegheny mountains.

Made cables for the old aqueduct across the Allegheny river at Pittsburgh, as well as those for the Smithfield and Sixth street bridges, that city, the latter being razed about 15 years ago.

Made its first rivets in 1845, being preceded in rivet manufacture only by the Plymouth mills, Plymouth, Mass., its only competitor at that time.

Made rivets for the first wagon built by the Studebaker Bros. at South Bend, Ind.

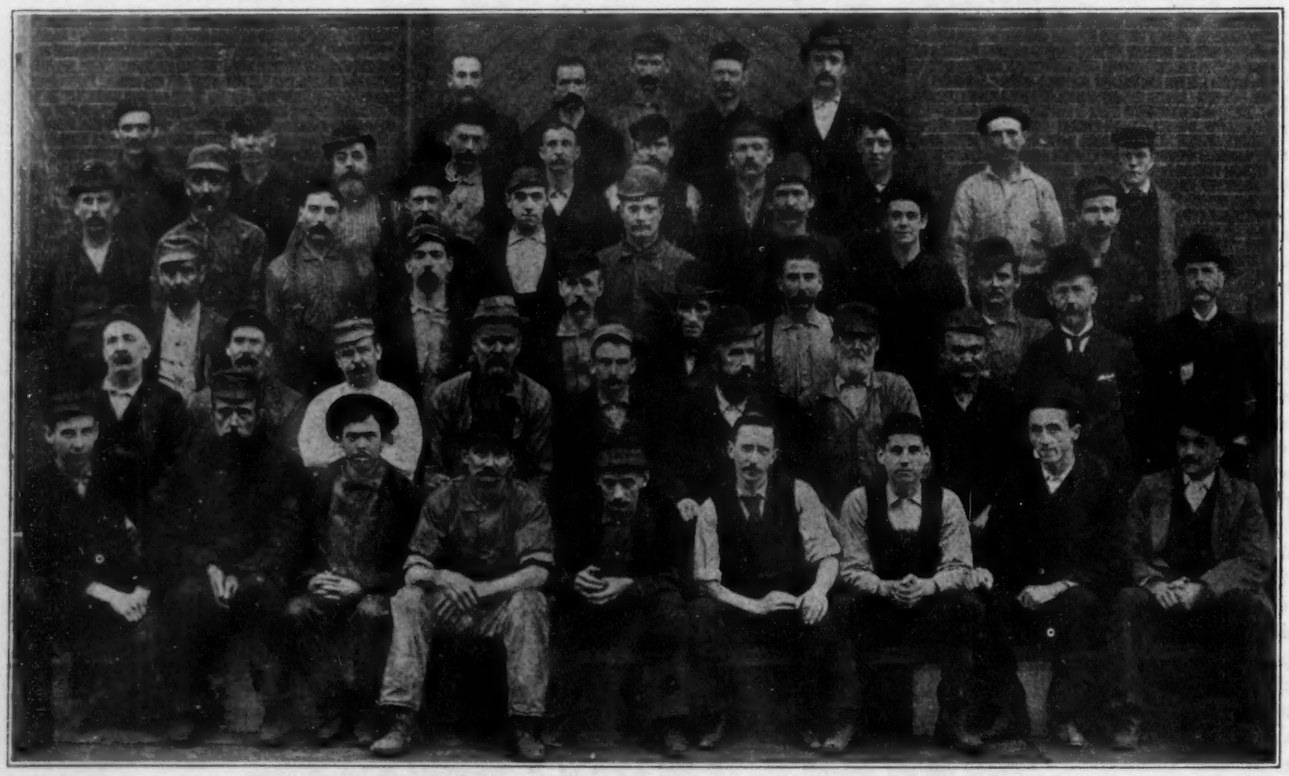
First made nails Oct. 1, 1885.

Some of these establishments are shown in the accompanying reproduction of an early drawing. Buildings marked "10" constitute the wire mill of R. Townsend & Co., the one marked "5" is the keg shop of M. T. & S. Kennedy. Various historic landmarks gradually have been obliterated and the ground thus vacated has made room for the expanding Townsend business. Among the many industries which at one time occupied the ground now taken by the Townsend plant were an addition to the keg plant mentioned, the Kennedy Flour Mill, the Thornily Stove Works, the Darragh Foundry & Machine Shops, the Miner Saw Mills, the Clarkson Woolen Mill, the Wright Shovel Works, Standard Horse Nail Works, Dickey Handle Factory, Miner & Merrick Pail Factory and the Burns Planing Mill.

The most recent addition to the plant, made about two years ago, comprises four buildings, and practically doubles the former capacity. This expansion increased the working space to 12 acres and permits the employment in normal times of 1500 workmen.

Name Style Changes Four Times

Soon after the Pittsburgh shop was opened, Robert Townsend and his cousin Rees C. Townsend, with John D. Baird, entered into partnership. The name of the firm was Townsend, Baird & Co. After a few years, Mr. Baird retired and William P. Townsend, Robert Townsend's eldest son, became a member



A GROUP OF OLD EMPLOYES. SEVERAL GENERATIONS OF EMPLOYES HAVE WORKED WITH THE SEVERAL GENERATIONS OF EMPLOYERS

of the firm, the name of which was changed to R. Townsend & Co. Rees C. Townsend died in 1851 and Robert Townsend retired from the firm in 1864. The business was continued by William P. Townsend under the name, W. P. Townsend & Co.

At the close of the Civil war, Charles C. and Edward P. Townsend, sons of William P. Townsend, were admitted to partnership. In 1894 William P. Townsend withdrew from active participation in the business, which was carried on by his sons, C. C. and E. P. Townsend. In 1905 the business was incorporated with a capital of $750,000 under the laws of Pennsylvania as the C. C. & E. P. Townsend Co., and in 1916 as the Townsend Co., under its present management.

One evidence of growth of the company is the fact that its present catalog and price list is in the form of a 90-page, 5x7½-inch booklet, ¼-inch thick, whereas one of the early price lists was a single page leaflet twice folded to 3¼x5½-inches. In the early days prices also were quoted in longhand. A letter dated Aug. 21, 1868, addressed to C. H. McCormick & Bro., Chicago, reads as follows:

"Your favor of the 17th inst. is at hand. We desire to continue our dealings with you at the very lowest prices at which they can be made. One not acquainted with your requirements as to quality and uniformity of size will be deceived as to the cost of the rivets until they have furnished you one season. We now know exactly what you require and give our closest attention to the rivets made for you. We thought the price for last season was very low. All the expenses of manufacture are as great as last season. We are, however, anxious to meet your views and propose as follows for your supply for the season of 1869, viz:

"For No. 4 (4-lb.) and all sizes of larger diameter, 12½c net cash.

"For Nos. 5, 6 and 7 (5, 6 and 7-lb.) 14c net cash.

"This is very nearly the same as your figures as you will see by reference to copy of your letter. We put the Nos. 5, 6 and 7 at one price. Trusting this will be acceptable and assuring you of our continued effort to please. We are, Yours truly W. P. Townsend & Co."

Similar rivets today sell for 5½ cents down to 4¼ cents per pound.

Another letter dated Sept. 25, 1868 went to C. Aultman & Co., Canton, O. as follows:

"Your favor of the 21st inst. enquiring as to price and terms for rivets for the ensuing year is at hand. We can supply you with rivets as low as anyone in the business, made from the same quality of stock. We are making a specialty of rivets for agricultural purposes, doing all we can to keep the quality up to the highest point and are now supplying every establishment of the kind west of the mountains and a number in the east. We use a better and more expensive iron than any other manufacturer and have put our prices as low as they can be made of that quality. We are desirous of meeting your views and continuing to supply you and now propose to supply you for the coming year as follows: For ¼x5/16 diameter, 14c, and for 3/16 diameter 16c, four months' credit or for cash a discount of 5 per cent. We have a pretty good stock of iron bought some months since which we could not now replace under an advance of $5 per ton on the one quality and 17½$ per ton on the other. We hope to continue our connection with you and will spare no efforts to make an article that will give you entire satisfaction and as low as they can be afforded. Should you conclude to give us your orders, please give us as early notice of your wants as you can as we are now very full of orders and we will endeavor to have any you may want shipped at the time specified. Yours respectfully W. P. Townsend Co."

Pittsburgh, July, 1874.

Dear Sir:

We invite your attention to the enclosed revised tariff of prices.

It will give us pleasure to fill your orders on our best terms, and we trust you will find it to your interest to deal with us.

The enclosed prices will be charged on all orders executed on and after the above date.

Our terms are NET CASH, payable in Pittsburgh Bankable Funds, or New York or Philadelphia Exchange.

Parties purchasing Rivets and Burrs to the amount of $500, or upwards, at one order, shall receive, upon settlement for the same, a deduction of 7½ per cent. of the amount of Invoice.

Parties purchasing a like amount at sundry times during any six months, dating from 1st of January and 1st of July, and paying cash for them, shall be reimbursed to the amount of not exceeding 7½ per cent. on the sum of said purchases, said reimbursement to be made by a deduction from balance due upon settlement of the final invoice participating in said sum of purchases. Upon subsequent purchases during the same period, there shall be a deduction of 7½ per cent. on the amount of each invoice until a new period shall commence, said deduction to be made at the TIME of SETTLEMENT of each Invoice.

Respectfully yours,

W. P. TOWNSEND & CO.

HOW THEY REBATED IN 1874

The rivets referred to now are selling at 3 or 4 cents per pound, and the cash discount is 1 per cent on small rivets and one-half of 1 per cent on large.

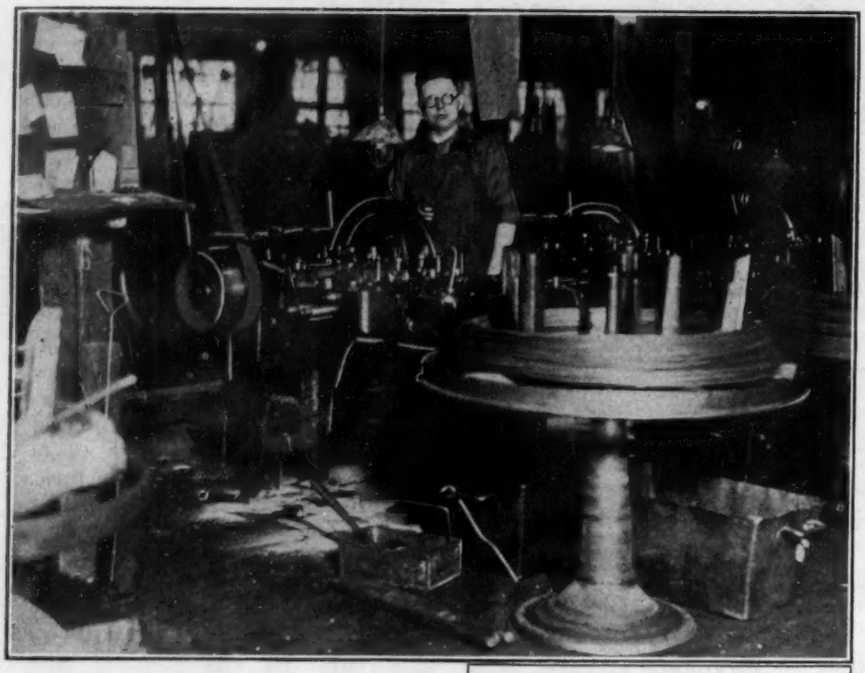
An interesting trade custom is revealed in a circular letter of July 1874, referring to a rebate of 7½ per cent when invoices amounted to $500 or more. At one time in 1845 the cash discount ran as high as 10 per cent.

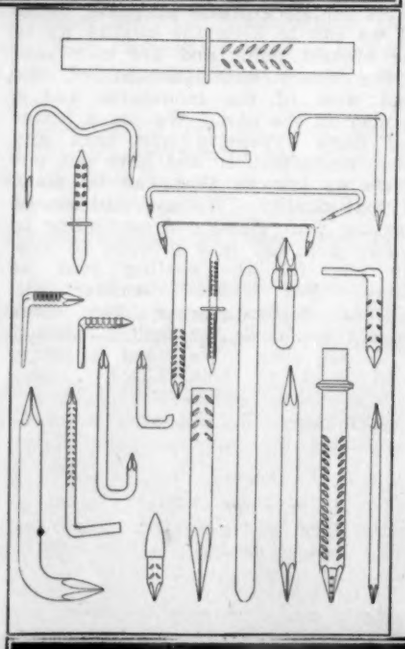
Even more interesting were the terms method of payment enjoyed by customers of the original Townsends. Western buyers would pay their bills twice a year, bringing to Robert Townsend their western checks and making him their banker. These he would deposit with N. Holmes & Son, Pittsburgh bankers, and for them he would give New York drafts which they would take to Philadelphia where they concluded other purchases. The Townsends felt the effects of the war of 1812, the Mexican war, the Civil, the Spanish-American war 1898, and the World war, furnishing much material in the latter, chiefly rivets for ships.

In the 110 years of its existence the Townsend establishment never has been completely shut down. For most of the time during the past 40 to 50 years, it has operated double turn. At present several fathers with their sons are employed by the company. At various times in the past, as many as three or four generations have been on the payroll. Sammy Corbus holds the record for length of service. He was identified with the Townsends for 70 to 75 years prior to his death. W. B. Couch the present superintendent has been in service continuously for 47 years, joining the Townsend company in 1879. Another interesting person in the Townsend "family" is Robert Carey. Born in the north of England and coming to this country as a boy, he has been employed by Townsends since 1870 or 1871. On Aug. 27 next he will celebrate the golden anniversary of his entrance into the Fallston mills. Mr. Cary saw the great grandmother of the company's present president buried. He remembers with pride how he used to wheel the present president in a baby carriage and tells with a humorous twinkle in his eye of a certain mishap which abruptly terminated that service.

He remembers how the earlier Townsends would shut the mill down for half a day or half a night to permit the workmen to gather at the old Townsend homestead in New Brighton for a strawberry supper. Later in the year, the men would gather for an oyster supper. He remembers how, particularly in the Civil war days, employes often were paid in merchandise such as potatoes, bacon and sugar. He tells of one old and trusted employe, who, when granted a voluntary increase in wages, handed part of the extra money back, aying that it was too much.

Another one of the old guard is John Binzley, whose son Rudolph is working in the machine shop. William Hamer, present foreman of the small rivet department also has a





Modern nail machines and specimens of nails made for special purposes; below, one of the modern rivet machines

son at work in the plant. John Joy has been in the nail mill since 1886 and his son Harry, also works in the mill. The company's master mechanic, L. Berchtold, is a son of Rudolph Berchtold who started to work for the company in 1873 and who became designer and master mechanic, originating much of the modern nailmaking and other machinery in use at the plant. Jim Payton who started to work in 1886 now has a son employed there.

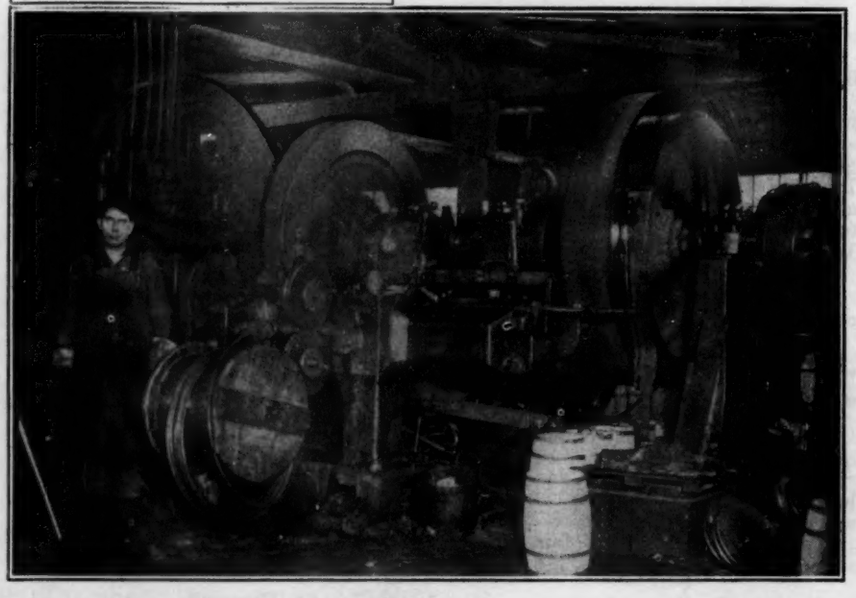
Officers of the company are: President and general manager, Robert T. Townsend; vice president, John M. Townsend; assistant general manager, H. C. Weidner; secretary and treasurer, V. L. Bradford; works manager, A. C. Townsend, and superintendent W. B. Couch. Sales offices are maintained in a score of the largest cities in this country and a large export business is conducted.

For several years officials and employes of the company have maintained a modern and finely equipped club house on Ninth street, New Brighton, Pa., between Fourth and Fifth avenues, in what was formerly one of the borough schools. The Townsend club has proved of great value to its members, obtaining for them such benefits as group life insurance, financial aid when required, assistance in procuring and paying for homes, co-operative buying of household supplies, and the services of a trained nurse without charge in case of illness. Out-of-town representatives make the clubhouse their home when their work brings them to the home office at New Brighton.

The Townsend Co., which at present handles between 200 and 300 orders as a daily average, for a few pounds to several thousand tons at a time, has the distinction of being the only rivet plant in the world which makes every size of rivet from a tiny steel pinion weighing 1/250 of an ounce (1000 of them weighing 4 ounces) to fastenings 1½-inches in diameter and 16 inches long, weighing over 9 pounds. These rivets are utilized in many ways and perhaps "touch" more people in every day life than any other steel product. They join small knife blades as well as microscopic jewelry and toy novelties, and likewise are used in the fabrication of the world's largest battleships, bridges and skyscrapers. In addition to the manufacture of rivets the company specializes in making nails to special specifications. The daily output of its products averages 500,000 pounds, as contrasted with 3000 to 4000 pounds in 1816.

Suggestion Wins Reward

One of the awards recently made by the officials of the Bethlehem Steel Co. for suggestions for increasing the efficiency of plant units went to George Hollyhead of the Franklin blast furnace division, Johnstown, Pa. Mr. Holleyhead suggested that the wearing plates in the skip tank chutes be altered by cutting off the bottom of the boiler iron plate and replacing the nose with a manganese cast plate. The boiler iron plates have to be changed about once a year and only the nose is worn. The manganese plates will wear much longer, can be changed more quickly and handled more easily.



Price War in Ferromanganese

American Sellers Cut Market $25 to $27 in Struggle for Dominance, While British Producers for First Time Refuse to Compete—Domestic Market Now in Hands of Three Interests.

INTERESTING details have come to light in connection with the price war in the ferromanganese market. With the decline to $90, duty paid tidewater, equivalent to $56.40, without the duty, and with prices in some instances down to $88, duty paid, selling prices are $25 to $27 less than $115 which was in effect for 14 months. Present prices are admittedly below cost of production in this country.

Spectacular fluctuations every now and then characterize the market in this alloy, so that the present situation is by no means unprecedented. A war between British ferromanganese makers for the business in the United States took the market down to $36 in January of 1914. During the World war the market went up to $400. Later, when government prices were fixed, the ferromanganese price was stabilized at $250. Since the World war, there have been two sharp conflicts between the British makers for American business.

The present struggle is unique in that it is between domestic makers for the business in this country. What the ferromanganese market now is undergoing is the throes incidental to the birth of a new factor in the ferromanganese market in this country. Recalling a little history, it may be said that the United States Steel Corp. always has been a year in and year out producer of ferromanganese, but that it has made this metal, with few exceptions now and then, almost entirely for its own consumption. Prior to the war nobody in this country made ferromanganese regularly for the market. During the war, exports of ferromanganese from England were severely restricted and the price soon went up to levels which, for the first time, encouraged production in the United States for the market. A number of concerns engaged in the business and some of them continued to produce ferromanganese for the market for a while after the war. Sooner or later, however, all of them abandoned this activity except E. J. Lavino & Co. The Lavino company is the only company which consistently has produced ferromanganese for the market since the war. At all times, since it started in ferromanganese production during the war, it has been an important factor in the market.

British Interests Controlled Market

For a long time, and up to about two years ago, most of the business of the United States was taken by the British producers and E. J. Lavino & Co. This balance was disturbed to some extent when the Electro Metallurgical Sales Corp. began to take American business on a fairly large scale. It was further disturbed by the entrance of competition from Germany and India; and again in recent months when the Bethlehem Steel Co. added ferromanganese as one of its regular products for the market.

A number of features have developed in connection with recent ferromanganese business. There have been transactions of a reciprocal character. Special quotations have been made in some instances.

The domestic ferromanganese market now is in the hands of three interests. Bethlehem Steel Co. is said to have accumulated orders for 50,000 to 75,000 tons. E. J. Lavino & Co. also are said to have a large tonnage which will occupy their producing capacity for some time. The Electro Metallurgical Sales Corp. has entered considerable tonnage, a large part of which will be shipped from the company's plant at Welland, Ont.

From the time ferromanganese first began to be used in the steel industry, up to the outbreak of the war in 1914, the British makers had practically a monopoly on the American market. They had a syndicate which generally fixed the price that Americans paid over long period.

For the first time British makers are refusing to meet the competition in the American market. When prices were cut from the $115 level of three weeks ago, the British price was marked down to $110. Lower than this, however, the British makers will not go. To meet the present competition here, they would find it necessary to make corresponding reductions on all of their home business and on their other export business. This they are not prepared to do.

In some quarters of the trade the belief has been expressed, and even received publication in the newspapers, that Bethlehem Steel Co.'s increasing importance in the ferromanganese market is based on an arrangement with the Harriman interests involving Caucasian manganese ore. An investigation shows there is nothing much to be said in this connection beyond the fact that Bethlehem is buying manganese ore on the best terms possible, whereas the Harriman interests also are selling their ore on the best terms possible. While the Bethlehem company has shown a preference for Caucasian manganese ore, the Lavino company relies on ore mainly from other sources. Consequently, it is plainly indicated that the extent to which Bethlehem's sales of ferromanganese are increased has an important bearing on the amount of Caucasian ore imported into the United States. Incidentally, Caucasion ore now is coming into the United States in greater tonnage than ever before.

International Commission To Meet Here

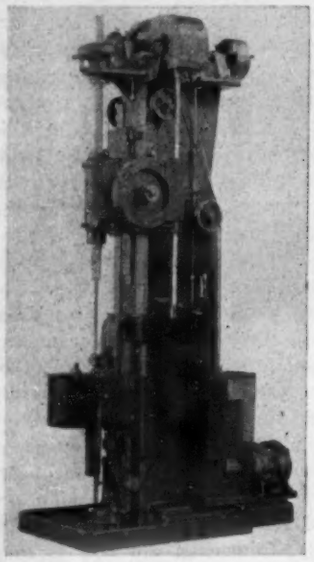
At the International Electric congress which was held at the Louisiana Purchase exposition, St. Louis, in 1904, was formed the International Electro-technical commission. This organization was completed in London in 1906, with Lord Kelvin as its first president, and since has been a factor in the international standardization of the electrical industry. Work of the commission gradually has broadened out until today 24 nations are participating in its activities. Plans now are being made for a meeting of the commission in New York in April. Over 125 delegates will attend and important conferences of several standardizing bodies will take place. The delegates will be conducted on a tour over the northwestern part of the United States, with power plant visitations a feature. Charles LeMaistre, London has served as secretary since the founding of the commission, while M. Guido Semenza, Italy, is the president this year.

Industrial accidents take 23,000 lives every year, according to the National Safety council.

Develops Machine for Burnishing

No. 51

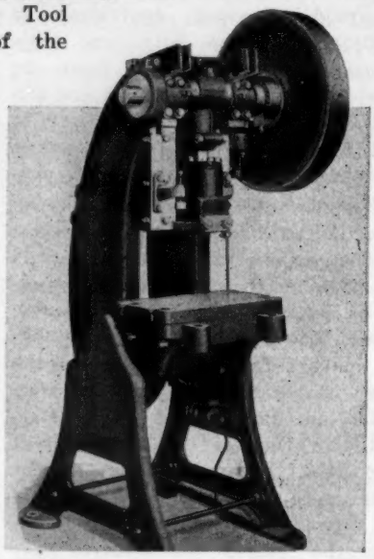
Defiance Machine Works, Defiance, O., has developed recently a burnisher for burnishing to micrometer size and smoothness bronze bushed holes in steering knuckles and similar parts. The design is calculated to withstand the strain and heavy duty of intensive production. Diameter of the main spindle is 1⅝ inches, spindle speed being 290 revolutions per minute with a 3-horsepower motor running at 1150 revolutions. Spindle feed is 54 inches per minute, with a maximum travel of 18 inches. The carriage is actuated by a worm wheel and gear, driven with a splined shaft by a right and left hand friction. Feed can be adjusted for continuous up-and-down motion or for single cycles, the operator engaging the frictions of each cycle. The 7 x 16-inch lubricant tank, 10 inches deep, has a vertical movement of 6 inches by means of an air cylinder at 60 to 100 pounds pressure. Net weight is approximately 4250 pounds.



New Press Is of Inclinable Type

No. 53

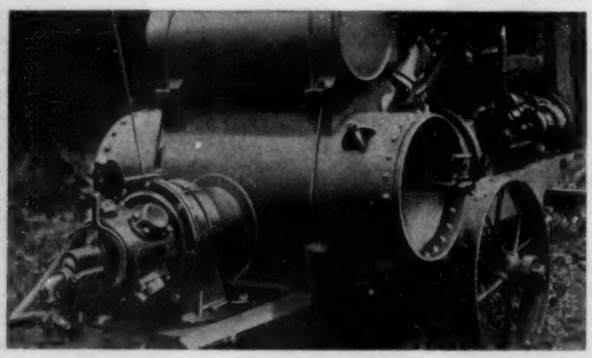
Loshbough-Beck Press Co., Elkhart, Ind., is manufacturing a high speed, heavy duty, open-back inclinable press, designed for durability and for reduction of maintenance cost. Parts subjected to unusual strains have been strengthened and the tripping device constructed to minimize operators' fatigue. Crank shafts are high carbon steel, unusually heavy and with extra large bearings. The ram has long V-shaped guides, accurately hand-scraped. Guides always are in full contact with the ways, making them horizontally rigid. Tool steel clutch is of the square sliding type, and is provided with a device to lock the clutch pin when withdrawn as in setting dies. A solid web flywheel is used to eliminate accidents and has a removable cast iron bushing for replacement purposes. The ram is adjustable from both sides, insuring accurate alignments.



Places Hoist on Air Compressor

No. 52

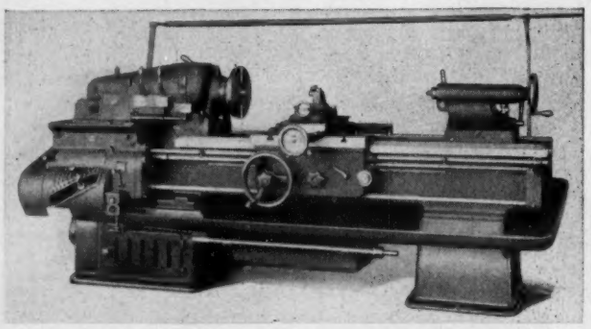
Ingersoll-Rand Co., New York, has placed on the market a new air hoist for use with portable air compressors. It is of the winch type and is light and compact, provided with mountings for attaching to the rear or side of portable compressors. A rope pull of 1000 pounds can be exerted, and it can take 350 feet of 5/16-inch cable. A swivel bolt through the base permits swinging the hoist into any desired position. By means of a clutch, cable can be played out by hand or by a downgrade load without turning over the motor. Hand brake on the drum checks the unwinding. The hoist is economical in air consumption. Rope speed is 61 feet per minute under load at 80 pounds air pressure. The machine is 15 inches wide, 25⅝ inches long and 19⅛ inches high. Net weight is 250 pounds.



20-Inch Lathe Has Greater Swing

No. 54

Pratt & Whitney Co., Hartford, Conn., has added to its line a new 20-inch lathe designed primarily for a 7½-horsepower motor. A shoulder-high control rod runs the length of the bed and operates the friction control clutch. A range of 16 spindle speeds is provided at from 8 to 383 revolutions per minute. Headstock is quiet and smooth operating, all gears being ground on the company's own machine for wheel grinding spur gear faces. Lower gears dip into an oil reservoir and splash the others and a geared oil pump sprays oil over the entire top of the train. The feed gear box is designed so that a rocker lever and ratio lever work in unison with a direct reading index plate, eliminating charts. Thread range is from 1 to 56 pitch, feed range from 0.0030 to 0.1667 inch for both carriage and cross feeds. Net weight of the 48-inch machine is about 6200 pounds, without motor.



Standard Tools in Greater Demand

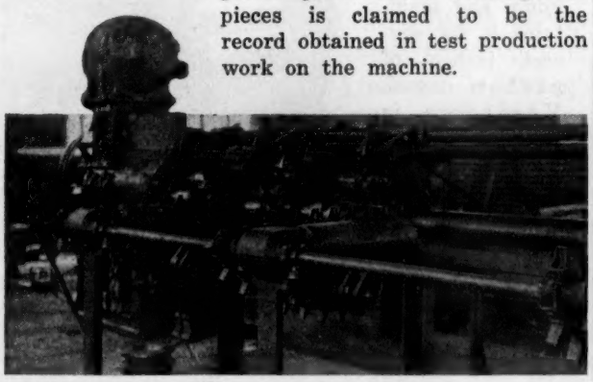
ONE of the most notable advances of American industry has been the development of mass production and it has been an important influence in the design of machine tools and shop equipment. Not so many years ago, tool design was confined to standard types and units were purchased with a view to their accommodating wide ranges of work. With the speeding up of production and the desire to turn out parts in quantity, however, there sprang up a demand for equipment of the single purpose type—machines built to perform one definite operation rapidly and economically.

In view of this demand, tool builders turned their attention to the development of units to meet

Pipe Threading Unit Is Automatic

No. 55

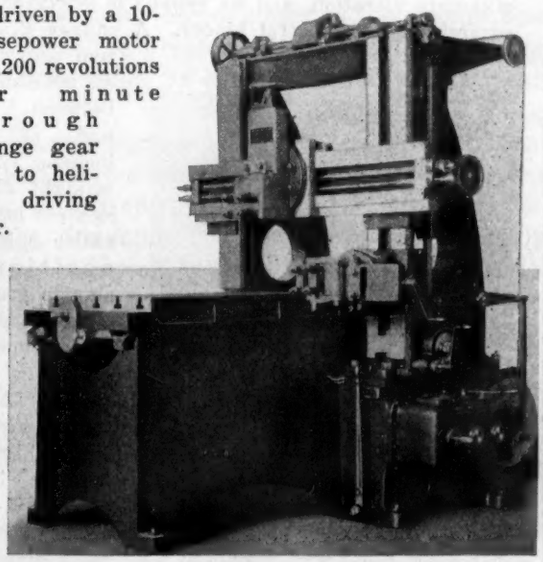
William K. Stamets, Pittsburgh, is marketing for the Davis & Thompson Co., Milwaukee, a completely automatic pipe threading machine. An automatic conveyor takes the stock from the cooling rack, advances it over power rolls to the dies, and delivers it to the loading fingers and chuck jaws. A chain clamp grips the pipe automatically during the threading operation, releasing it for discharge on the opposite side. Thus cranes are eliminated and floor space, labor and overhead conserved. Longitudinal movement of the six spindles is controlled by floating and positive cams, and the die closing mechanism is automatic. A 6-station work drum rotates in synchronism with the spindle drum. With chasers running at a cutting speed of 40 feet per minute, the production rate on ¾-inch pipe is about 40 pieces per minute, although 63 pieces is claimed to be the record obtained in test production work on the machine.



Crank Planer Built in Two Sizes

No. 56

Consolidated Machine Tool Corp., Rochester, N. Y., has developed at its Newton works a new side head crank planer in two sizes, 34-inch and 39-inch strokes. The counterbalanced side head is adjustable by vertical power and hand feed, and may be lowered below the top of the table. Table is of double plate construction with five machined T-slots, and is adjustable for positioning work while the machine is stroking. All gears are hardened, enclosed, and run in oil. The plane has six speeds and is driven by a 10-horsepower motor at 1200 revolutions per minute through change gear box to helical driving gear.



these specialized needs, thus today's purchaser can choose almost any type of single-purpose equipment he may need. Perhaps the automobile industry, more than any other, has had the greatest effect upon this tendency, for the expanding demand for motor cars and the extremely keen competition has forced manufacturers to reduce production costs in every possible way. Finding that single purpose machines were more economical than standard types, car builders soon were heavy buyers of this class of equipment.

Use Single Purpose Tools

Machinery of a single purpose nature always will be required where production is repetitive, at the same time standard units always will enjoy the demand of smaller shops where various classes of work must be accommodated on one machine. In a general way, it may be said for every single purpose unit sold, a standard unit is sold. A survey of major metal cutting tools developed and introduced in the last 12 months shows that of 65 new units brought out by builders, 34 were standard and 31 were special. Dealers of machinery now are reporting that buyers are swinging back somewhat to the purchase of standard types. Special purpose units have now reached a high plane of development and builders have been able to devote more attention to the standard lines and to make them more adaptable for both general and special work.

One of the interesting special units introduced in March was a machine for burnishing to micrometer size and smoothness bronze bushed holes in automobile steering knuckles and similar parts. Defiance Machine Works is the designer of this tool which is described as No. 51. It consists of a substantial frame and a vertical spindle which has a speed of 290 revolutions per minute and a feed of 54 inches per minute. Maximum travel of the spindle is 18 inches but this distance can be reduced to any length by means of adjustable stops. The feed can be adjusted for continuous motion of the spindle and saddle up and down, or it can be set to make one complete cycle down, returning up again and stopping until the frictions are engaged by the operator.

A lubricant tank, mounted on the lower saddle on the front side of the machine, has a vertical movement of 6 inches, being raised and lowered by an air cylinder. Holding fixtures are made to suit requirements and can be clamped in a stationary position on the main slide on the front of the machine, leaving the work in the clear while the lubricant tank is dropped to its lowest position. When the tank is raised, the work to be burnished is immersed while the burnishing operation takes place. The tool has a production rate of 60 to 75 holes per hour.

Pipe Threader Is Automatic

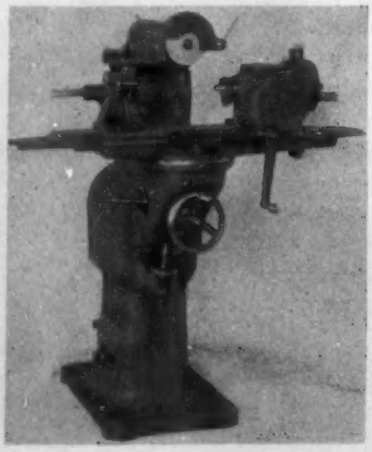
Another special machine, described in No. 55, is an automatic pipe threader. It is built by Davis & Thompson Co. The function of the equipment is to pick up pipe as it comes from the cooling table after butt welding, and to grip, thread and discharge it without assistance of an operator. Six spindles are used and are equipped with die heads which screw on. The die closing mechanism is automatic. An automatic conveyor furnished with the machine takes the pipe from the table, carrying it over power-driven rolls which advance it to a stop in line with the dies and delivers it to the loading station, then to the chuck jaws. An automatic chain clamp then grips the

(*Concluded on Page* 906)

Machine Grinds Circular Cutters

No. 57

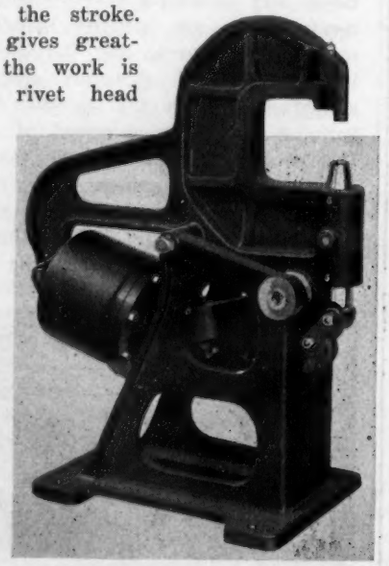
Pratt & Whitney Co., Hartford, Conn., has just introduced a new hob and cutter grinder designed for sharpening hobs and milling cutters. The column is a single rigid casting, carrying the knee on a front slide and with a machined top surface for the wheel slide. The traversing handwheel has a graduated dial permitting accurate setting with the cutter flutes. By pivoting the table on top of the knee to any angle with the wheel spindle, the helix angle of the cutter being ground is compensated. The tailstock is simple and rigid to eliminate vibration, and its spindle is heavy and held securely by a powerful binder. A change gear system provides for all possible leads between 3 inches and 133 1/3-inches. To grind straight flutes a lock pin locks the entire spindle in position, the change gears being removed. The new grinder occupies a floor space 40 x 58 inches, and is 51 inches high. The machine is run by a ¾-horsepower motor.



Air Riveter Rapid in Operation

No. 58

Hanna Engineering Works, Chicago, recently announced its development of a new rapid riveter which permits inserting rivets from above and driving from below, operating at a speed of 50 strokes per minute. Its mechanism combines a simple lever and toggle, giving a long die stroke with a wide range of uniform pressure, tending to eliminate the necessity of screw adjustment on the die. Die travel is rapid in approaching the work, speed then gradually decreasing until it enters the uniform pressure area of the stroke. This type stroke gives greatest speed where the work is lightest; as the rivet head forms, the pressure increases, reaches a maximum and maintains it for several inches of piston travel. Variations in rivet lengths and plate thicknesses are automatically compensated. The machine is made for driving ¼ to ½-inch rivets hot, or 3/16 to ⅜-inch cold.



Editorials

Steel for Strength and Security

A NEW YORK architect deplores the lack of what might be termed a steel consciousness. He also observes that the columns in the high American structure of today must be buttressed with masonry far beyond the requirements of fireproofing in order to give a feeling of security. The country is masonry minded, he complains, and the architectural possibilities of steel will not be realized until its strength is visualized.

An argument wholly on artistic grounds the average fabricator will sidestep, but he finds it difficult to accept a popular distrust of steel. Bridges flung across broad rivers, steel-equipped trains traveling upward of 60 miles an hour on slender rails, elevated railroads straddling city thoroughfares, tall towers tying distant cities into a single power pool—here is steel in the raw without the slightest suspicion of fear.

Undoubtedly much can be done to beautify steel products but it must be remembered that utilitarian requirements are the first to be developed and steel is not a very old material. Metal furniture and automobile bodies aptly typify the possibilities. For building purposes strength will always be the primary consideration but even here the tendency is toward clean, unbroken lines. Certainly the Woolworth building in New York and the Tribune tower in Chicago bespeak steel rather than masonry.

Action on Merchant Fleet Needed

UNLESS sentiment can be aroused by backers of sound legislation for complete reorganization of the shipping board, with private enterprise owning and maintaining the American merchant marine, action by congress at this session seems doubtful. Indications are the bills in the house and senate will not be reported out of committee. Pressure from various sections of the country on congressmen is strongly against the proposals looking to speedy private control of the merchant fleet as advocated by the administration.

In the meantime, the spectre of the laid-up fleet of the shipping board is haunting the shipbuilding industry. It is creating an uncertainty that tends to hold back programs for the future. The sectional divisions have brought their arguments to Washington protesting against any legislation now, seeing the prospects of favored treatment for regional ports, with the shipping board administration as it exists.

The shipping question is one of the most important before congress. It undoubtedly affects the commerce and industry of the country far more than world court adherence. The board, in the operation of the fleet, has the biggest administrative job on its hands of any similar undertaking of any government agency. About $3,000,000,000 worth of shipping is involved. It is to be regretted if congress should adjourn without having shown the courage to undertake the largest job that was before it.

Standard Tools Regaining Buyers' Favor

STANDARD machine tools appear to be swinging back into greater favor with equipment users. Several years ago, when first it became evident that there would be a prolonged, if not an everlasting shortage of cheap labor, attention was focussed as never before on labor saving machinery. Demand for automatic and semiautomatic equipment increased rapidly. Recently, trade reports indicate that there is a swing back to standard tools.

One of several factors in this development appears to be a keener appreciation of the relative simplicity in the operation of standard machines and the corresponding ease in upkeep and repair. On certain operations, where the more elaborate equipment has been installed, this thought has been brought home forcibly to the manufacturer in various instances. However, the one consideration that probably comes closer to the answer than any other is the greater speed and cutting power of standard tools, as compared with a few years ago.

Automatic and semiautomatic equipment always will have a broad and growing field; nevertheless, improvements in recent years, combined with the fundamental simplicity of the equipment, have placed standard tools in a position to regain considerable lost ground.

Corporation's Production Ratio Drops

ALTHOUGH pig iron and steel ingot production of the United States Steel Corp. has made handsome gains during both 1925 and 1924, the statistics reveal that during the last three years its position has been pulled down

slightly in relation to the industry as a whole. According to the annual report of the corporation recently made public, pig iron output increased 16.7 per cent in 1925, as compared with 24.2 per cent in 1924. Ingot production gained 14.7 per cent in 1925, against 18.9 per cent in the preceding year.

In 1925 pig iron produced represented 40.7 per cent of the total for the country, while in the previous year its contribution amounted to 40.8 per cent. Last year the country's output of iron showed an increase of 17.05 per cent; the corporation's improvement was 16.7 per cent. In 1924, while the country's production dropped 22.3 per cent, operations of the corporation declined 24.2 per cent. To go back to 1923, manufacture of all pig iron registered a gain of 49 per cent; the corporation's increase was only 39.1 per cent.

A similar situation exists for steel ingots. The records of the corporation reveal that it made 42.8 per cent of the country's total in 1925 and 44.7 per cent in 1924. The figures also disclose that while ingot production of the country gained 20 per cent in 1925, the corporation's output moved up only 14.7 per cent. In 1924, the country dropped 15.4 per cent and the corporation dropped 18.9 per cent. In 1923, however, the country's output went up 25.8 per cent and the corporation showed a gain of 26.4 per cent, the only time in three years that it has showed an expansion in its proportion of output for either steel or iron. While the shrinkages which have been noted in this two-year period have been small, nevertheless they reflect the growing competition and the fact that the independent companies are providing the larger share of the new expansion.

"Uneconomic" Ore Prices Reaffirmed

LAKE SUPERIOR iron ore prices for 1926 established on the same basis as in 1925 indicate the extent of competition in the ore industry, and the difficulty it will experience in getting its prices back on a plane commensurate with the value of its material and costs of production.

It was due to competition that prices were cut 80 cents a ton in 1924, and again 50 cents in 1925. Operating officials and executives of the leading independent producers claimed that those prices were "ruinous." However, when the time arrives for quoting prices for another year competition is so keen that sales are quickly made at the 1925 prices, and that is done "to forestall the chance of prices going lower."

Most of the operators have long-term contracts providing that the purchasers shall receive the so-called "open market" price of the ore, or at a discount of 25 cents or more. The open market price applies on a small proportion of the ore delivered by the independents. Low prices particularly affect the small producers which seek to sell a relatively large proportion of their product in the open market.

Overdevelopment of the industry and the terms of contracts with feeholders that require the production of certain amounts of ore annually regardless of market conditions are at the base of the competition in the industry. With the long-range trend of commodities downward it would be difficult for the industry to increase its prices, under any circumstances; with one and a half to two tons of ore pressing on the market for every ton that is in demand, it seems almost impossible to do so on any permanent basis, for years to come.

What Our Readers Are Thinking

"Unfavorable" Balance Misleading

IT IS misleading and unwise to call our present excess of merchandise imports over exports an unfavorable or adverse balance of trade. The term commonly used by our government stigmatizing as "unfavorable" our import trade balance for the first month of 1926 of $19,500,000 has grown up from sentiment and national pride, and not from usages of business or economic accuracy.

While exports vitally stimulate American production, the fact that they are largely being paid for out of the proceeds of foreign loans greatly impairs their permanent value to our balance sheet, while a constant flow of necessary imports, more than 80 per cent of which are noncompetitive with American products, tends to strengthen and develop trade throughout the world, and has a particularly helpful effect in Europe, where we look today for a market for the bulk of our manufactured goods.

Last year we exported $169,000,000 more gold than we imported and consequently last year's excess of merchandise exports was not paid for in gold. It was paid for almost wholly by money we loaned abroad for that purpose, an operation of great prospective benefit but not fairly describable as a completely "favorable" international transaction.

Our billion dollar investment in Cuba, however, has aided in increasing our exports to Cuba by over 800 per cent in the past 23 years and has opened vast opportunities for our trade expansion. So in just the same way our corresponding growth in foreign trade throughout the world can be and is being made responsive to our loan policy. The requirement is to make our loans abroad an integral part of our foreign trade system, and to abandon the popular fallacy that our progress is determined solely by speciously "favorable" balances of trade.—O. K. DAVIS, secretary, National Foreign Trade council.

The Reader's Page

Vol. LXXVIII, No. 13 IRON TRADE REVIEW April 1, 1926

Company 110 Years Old; Fourth Generation Extends Success

ONE of those interesting articles of historical character, written in narrative style, and descriptive of the founding and progress of American industries is featured in this issue of IRON TRADE REVIEW. The Townsend Co., New Brighton, Pa., manufacturer of rivets and wire products, this year is celebrating the one-hundred and tenth anniversary of its establishment. The company erected the first wire mill west of the Alleghenies. It made the three-strand twisted wire that was used by telegraph companies for the first telegraph lines over the mountains. It constructed cables for the first incline railway over the Alleghenies; and for the old aqueduct across the Allegheny river at Pittsburgh. Rivets were first made by the company in 1845, and nails in 1885. The company is in charge of the fourth generation of Townsends; its business larger than ever.

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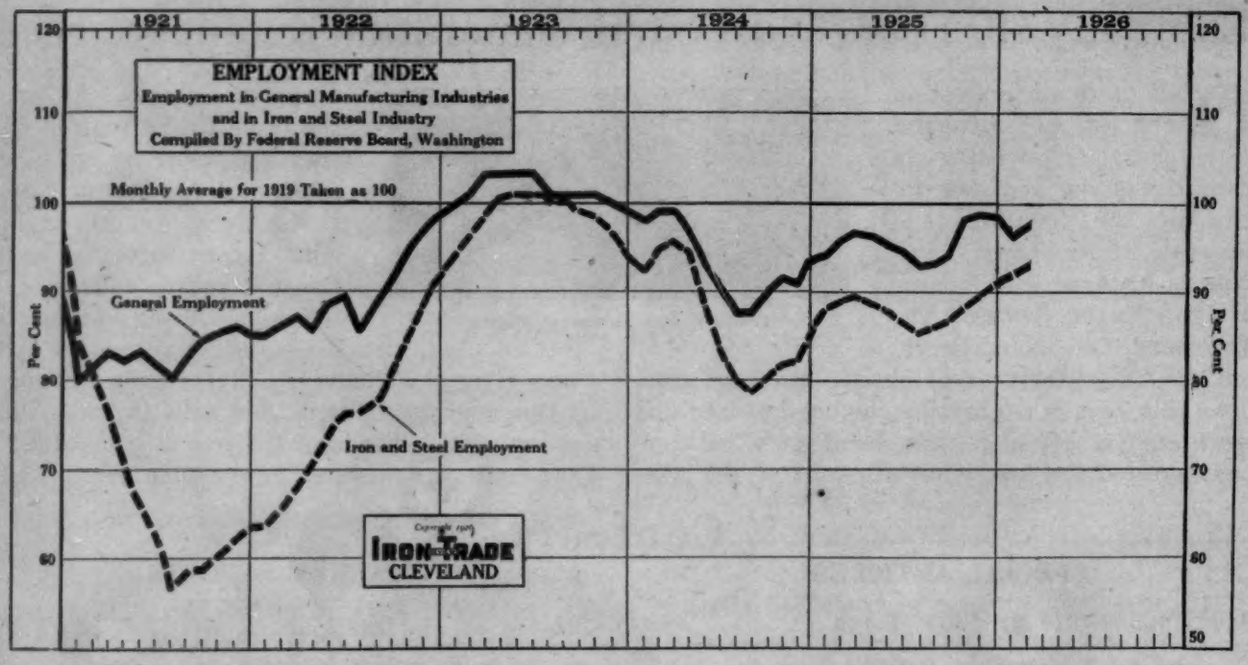
The Business Trend



Employment Remains On High Plane

By JOHN W. HILL, Financial Editor

ONE point of underlying strength in the present situation lies in the relatively high level of industrial employment. As shown by the accompanying chart, employment is higher than at the start of the year and one year ago as well. This applies both to general industry and to the iron and steel mills throughout the country.

ACCORDING to the computation of the federal reserve board, employment throughout all lines climbed to 97 per cent of the 1919 average in February, the latest period for which data are available. In January the index stood at 96 per cent of the 1919 average and one year before it stood at 95.8 per cent.

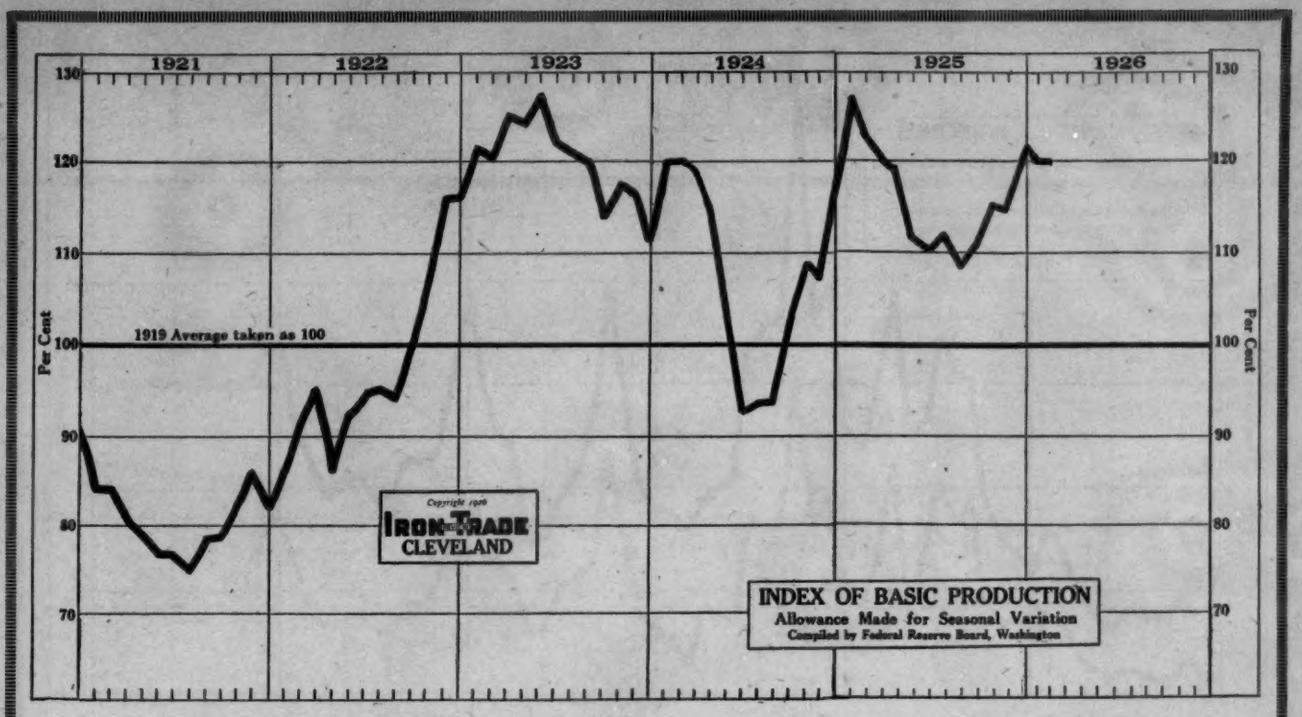
IN THE iron and steel industry the index of employment was 93.5 per cent of the 1919 level against 92 per cent in January and 89.6 per cent in February, 1925. These figures not only reflect a good rate of activities, but it means that the purchasing power of wage earners remains on a high plane. It is now about 37 per cent over the prewar level.

THE payrolls of industrial plants in the second month of 1926 were at an index of 111.5 against 107 in January and 108 one year before. This means that wage earners have more money in pocket. Meanwhile, living costs have been showing a declining tendency since the first of the year.

WITH employment so substantial it is not surprising that the distribution and consumption of goods continue large. Freight traffic, which dropped below the records of 1925 in the early weeks of the year, are now making new tops for all time at this season. Moreover, the first quarter of 1926 may set a new high mark for steel production.

NOTWITHSTANDING these facts the stock market has suffered severe declines, and business sentiment has lost much of its enthusiasm. Low prices and excessive caution in buying which now prevail have helped to dampen confidence. The arrival of open weather, however, is expected to quicken many lines, at least seasonably, and give the situation a better tone.

The Business Trend

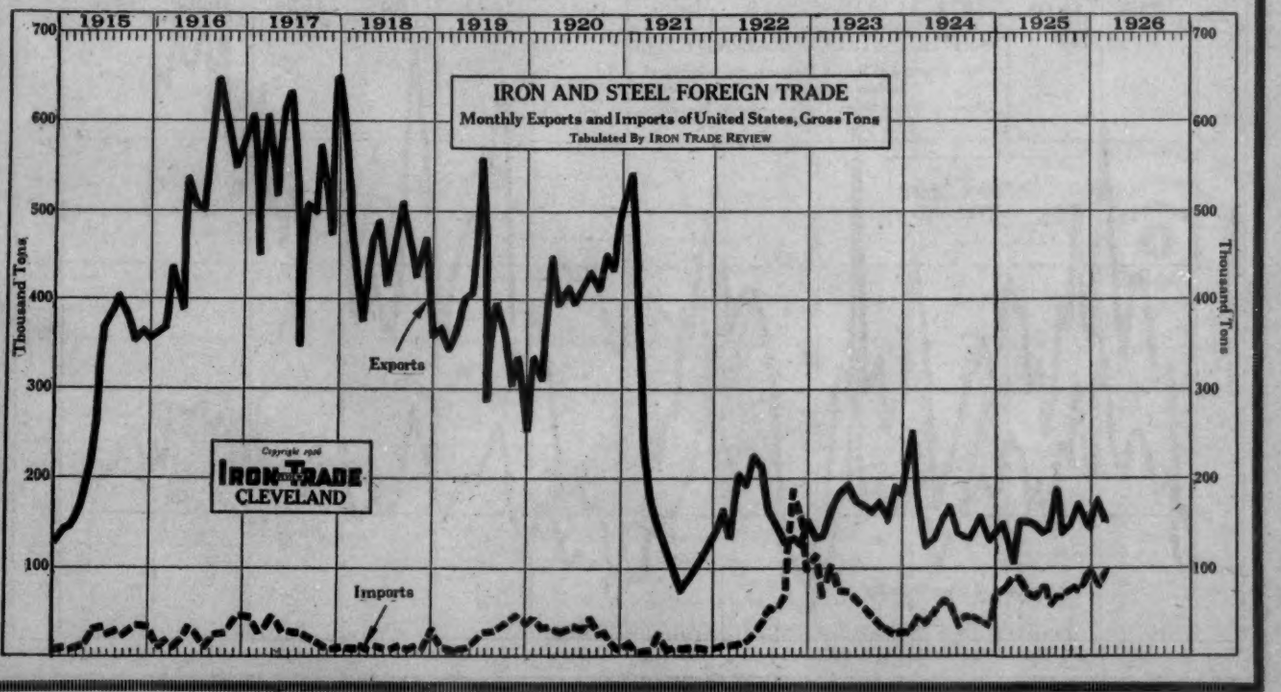


Basic Production

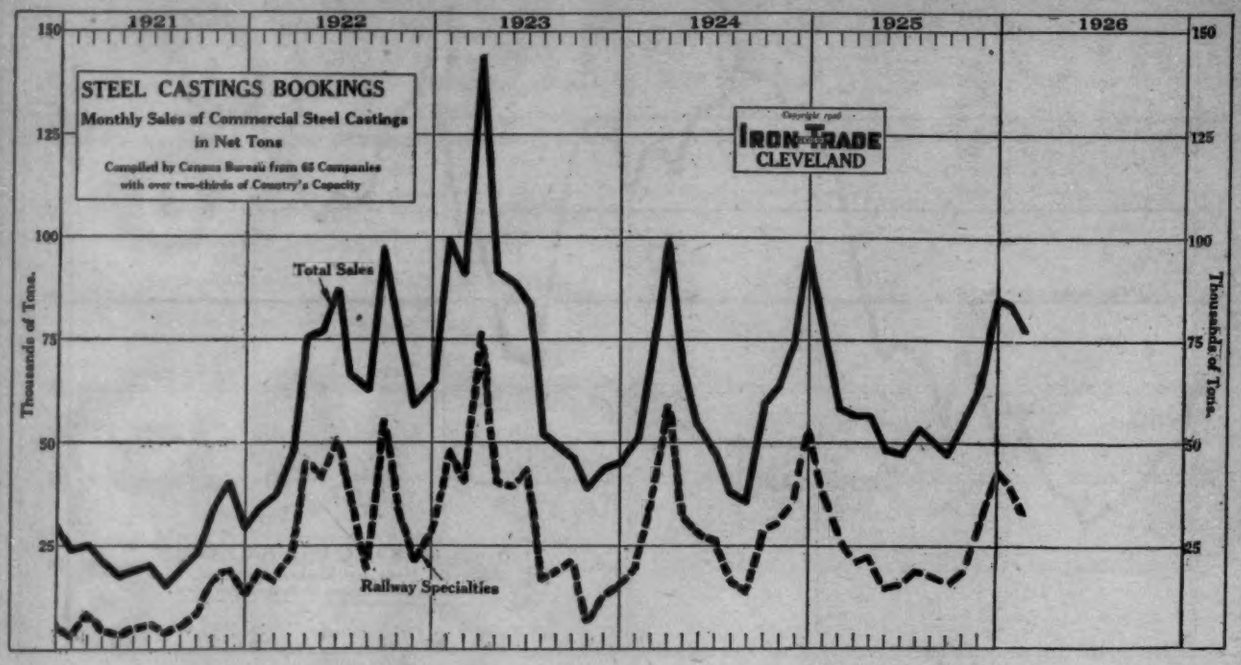
THE index of production in basic industries, as computed by the federal reserve board, indicated a continuation of productive activity during February in about the same volume as in the preceding two months. The index stood at 120 compared with 120 one month before and 124 one year before. The index is adjusted for seasonal variation and it shows increases for cotton consumption, flour production, anthracite coal output and copper output. Iron and steel production remained practically unchanged.

Steel Foreign Trade

IRON and steel imports showed another large increase during February. The total was 100,213 tons which was the highest volume for any time since March 1923. Exports on the other hand, declined. They were 157,187 tons in February against 174,585 tons in January and 102,299 tons in February 1925. The biggest factor in the large iron and steel imports continues to be heavy receipts of pig iron. In February the country imported 59,122 tons of pig iron against 47,803 tons one year before.



The Business Trend

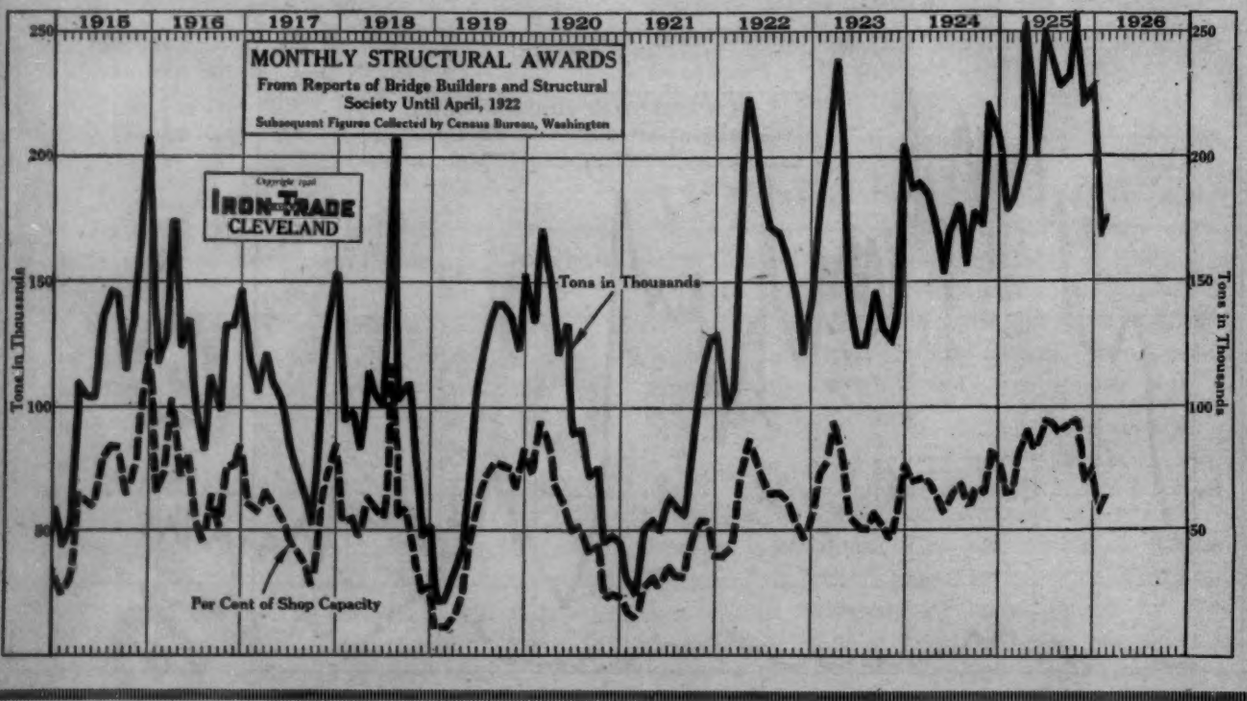


Steel Castings Bookings

BOOKINGS of steel castings as reported by the department of commerce for February were somewhat lower than they were in January but considerably greater than in February 1925. The total for the month was 75,548 tons against 84,232 tons in January and 61,535 tons in February 1925. Bookings of railway specialties also declined in February to 31,401 tons against 37,677 tons in January. In February 1925 railway castings bookings were 27,237 tons. Miscellaneous castings bookings also dropped.

Structural Awards

SALES of structural steel in February were better than they were in January or in February one year ago. The tonnage booked, as reported by the department of commerce, was 161,192 tons. This was 61 per cent of the shop capacity against 59 per cent one month before and 58 per cent in February 1925. Shipments of material in February amounted to 201,300 tons compared with 186,050 tons in February 1925. The actual tonnage of structural steel booked in February was 186,050 tons.



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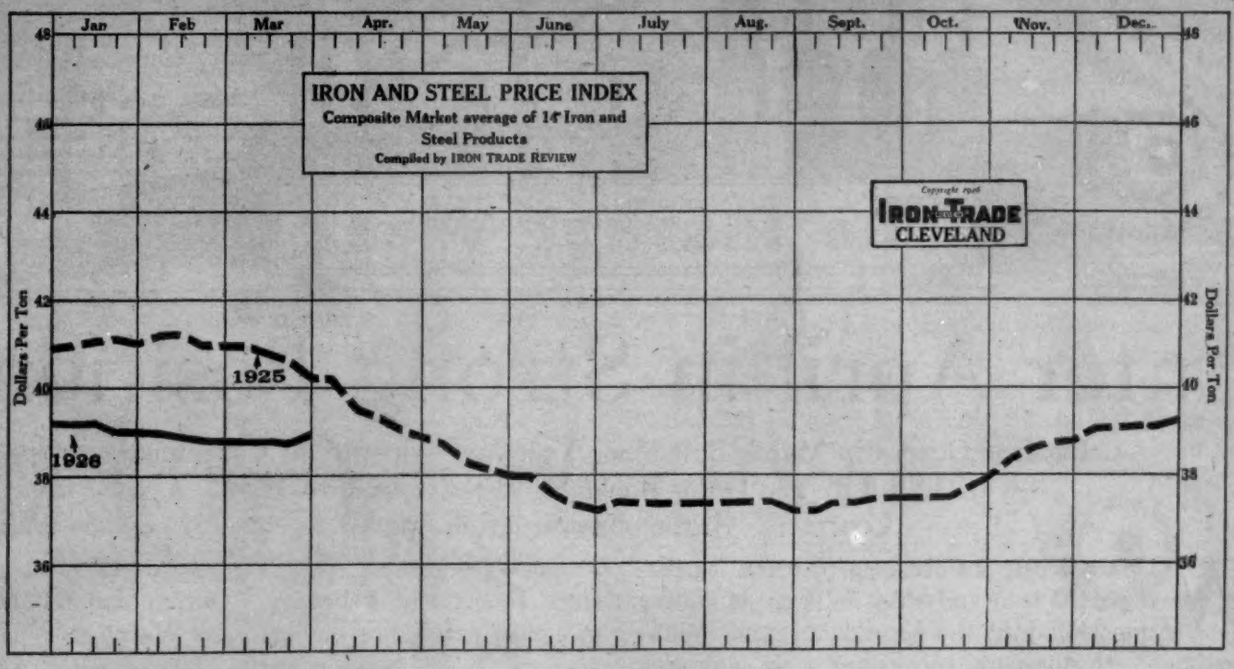
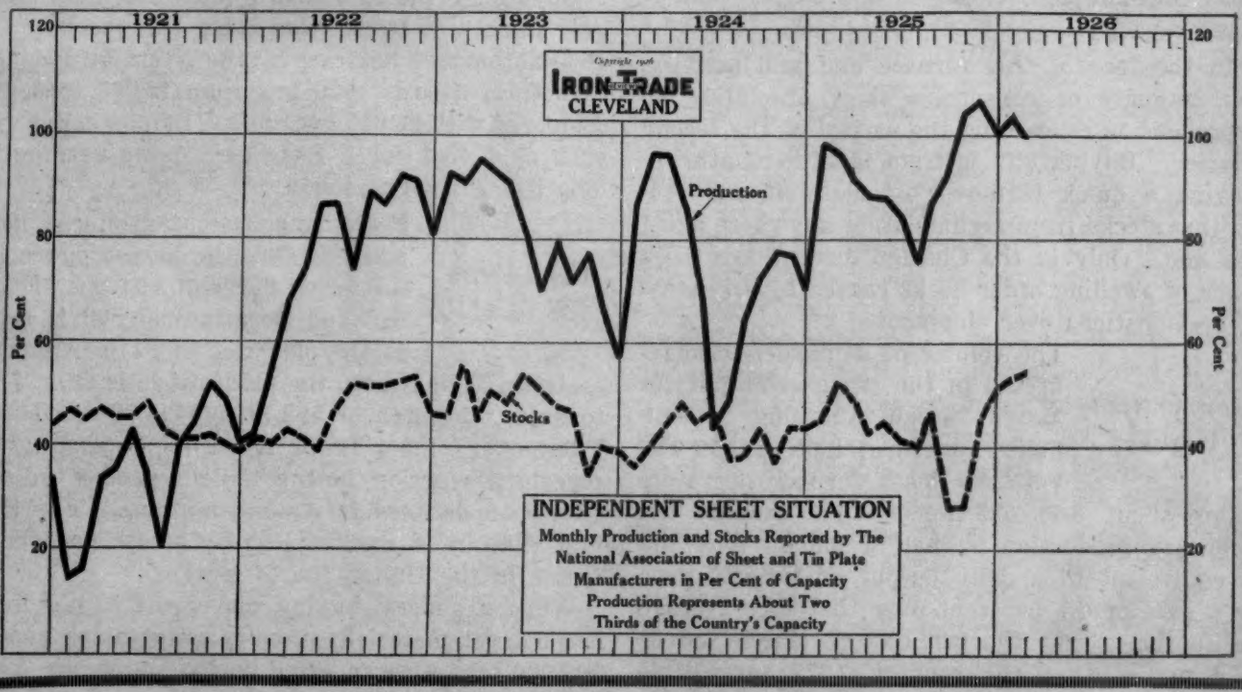


Iron and Steel Prices

IRON TRADE REVIEW'S composite market average of 14 leading iron and steel products gained slightly last week. The average stood at $38.93 compared with $38.89 one week before and with $39.14 in December. One year ago the average stood at $40.70. The efforts of producers seem to be directed toward holding prices firm rather than toward bringing about sharp advances which appear to be precluded in the immediate future by large supplies, ample capacities and exceptionally efficient railroad deliveries.

Independent Sheets

FEBRUARY brought distinct curtailment in the activities in the sheet industry. Total output for the month was at 100.9 per cent of plant capacity compared with 104 per cent one month before. Sales at 61 per cent of capacity compared with 80 per cent one month before. Shipments declined to 97 per cent of capacity from 106 per cent in January. Unfilled tonnage dropped to 524,000 tons compared with 609,000 one month before. Stocks on hand increased to 56 per cent of capacity compared with 53 per cent.



Enter April in Strong Position

Pig Iron Output in March Best Since Year Ago—Operations Continue at High Rate and Order Books Still Free from Forward Contracts—Automobile Situation Spotty

WITH scarcely an obstacle to block its passage, the iron and steel industry is gliding smoothly into the second quarter. While sentiment throughout the country is not uniformly optimistic over a continuance of activities at their present high rate, definite signs of faltering demand are not yet in evidence.

Compared with the conditions prevailing at this time last year, the industry now is in a strong position. The Steel corporation is operating in excess of its scheduled rate of 95 per cent of ingot capacity. While definite figures are not yet available, it appears that the entire Chicago district made more steel in March than in any preceding month in history. Notwithstanding this high rate of operations, specifications in Chicago are exceeding shipments by an appreciable margin. In Pittsburgh and Youngstown operations continue at between 80 and 90 per cent of ingot capacity.

In the face of this furnace and mill activity, the majority of consumers show absolutely no apprehension concerning the arrival of the second quarter. Buying still is from hand-to-mouth, involving a quick turn-over of material and preventing stocks from accumulating anywhere along the line. Only in the Chicago district are there signs of swelling order books caused by an excess of specifications over shipments.

Iron Output Higher

The volume of demand is also reflected in the pig iron output for March, which according to estimates furnished IRON TRADE REVIEW by blast furnace operators totals about 3,435,525 tons. This exceeds the February production by half a million tons and is equivalent to a daily output of 110,823 tons, or a gain of 6.1 per cent over the daily average in February. On the last day of March 235 or 62.4 per cent of the country's 377 serviceable stacks were active. This is a gain of 12 furnaces since the end of February. Output and number of stacks active are highest since March, 1925.

Watch Auto Production

Interest in the probable activity of the automobile industry during the next quarter is accentuated by the fact that four important builders have curtailed production. On the other hand, manufacturers of several moderate priced cars oversold their outputs in March and therefore are striving for greater capacity. Keen observers thus far find nothing alarming in the general automobile situation, the lateness of the season being held responsible for the difficulty in moving certain cars. One important point to remember in sizing up the automotive industry is that production now more closely parallels the actual volume of sales than in previous years.

Buying by the railroads is unusually light, the only important transaction being the purchase of 1000 automobile box cars by the Northern Pacific. Structural awards total less than 14,000 tons, as compared with 23,000 last week. Inquiry is heavy, with 8000 tons for a Pittsburgh hotel heading a long list of pending items.

Ferro Now $88 to $110

Ferromanganese was offered last week at $88, the lowest figure in the recent flurry of activity. English and German material is held at the old price of $110, Atlantic seaboard. Therefore, the price range is from $88 to $110, tidewater, or $92.79 to $114.79 delivered, Pittsburgh. IRON TRADE REVIEW's London cable reports a reaction in the British market in response to declines in American prices. For the first time in 18 months English spiegeleisen is a factor in the United States market.

While a general buying movement in pig iron has not yet materialized, sales aggregating about 100,000 tons were reported during the week. The

market is more active than at any time since the majority of first quarter needs were contracted for about three months ago. For the most part prices are firm and an unusual degree of stability is indicated. A southern pipemaker purchased 12,000 tons of foreign iron, while an additional order of 25,000 tons of basic iron by a Philadelphia consumer is reported. Second quarter coke contracts have been placed by furnace operators at $3 to $3.25.

IRON TRADE REVIEW composite of fourteen leading iron and steel products stands at $38.86, as compared with $38.89 last week and $40.22 a year ago.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Mar. 31, 1926	Feb. 1926	Dec. 1925	Mar. 1925
PIG IRON				
Bessemer, valley, del., Pittsburgh	$22.76	22.76	22.76	23.86
Basic, valley	20.00	20.00	20.00	21.35
Basic, eastern del., eastern Pa.	21.75	22.50	23.00	23.75
*No. 2 foundry, del., Pittsburgh	22.26	22.26	22.26	22.86
No. 2 foundry, Chicago	23.00	23.00	23.00	24.00
*Southern, No. 2, Birmingham	22.00	22.00	21.60	21.00
*Southern Ohio, No. 2 Ironton	21.00	20.60	21.10	21.60
**No. 2X, Virginia furnace	23.00	23.25	23.30	24.00
**No. 2X, eastern del. Phila	23.26	24.01	24.26	24.51
Malleable, valley	20.50	20.50	20.50	21.25
Malleable, Chicago	23.00	23.00	23.00	24.00
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del., Pittsburgh	21.76	21.76	21.76	22.36
Ferromanganese, del., Pittsburgh	92.79	119.79	119.79	119.79
*.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	3.10	7.45	4.00	3.35
Connellsville, foundry, ovens	4.50	6.50	5.10	3.85
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.00	36.60	38.50
Sheet bars, open-hearth, Pittsburgh	36.00	36.00	36.60	38.50
Billets, open-hearth, Pittsburgh	35.00	35.00	35.20	37.75
Wire rods, Pittsburgh	45.00	45.00	45.40	48.00
FINISHED MATERIAL				
Steel bars Pittsburgh	2.00	2.00	2.00	2.10
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, Philadelphia	2.32	2.32	2.32	2.42
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago, mill	2.00	2.00	2.00	2.10
Beams, Pittsburgh	1.90	1.90	1.95	2.10
Beams, Philadelphia	2.22	2.17	2.17	2.32
Beams, Chicago	2.10	2.10	2.10	2.30
Tank plates, Pittsburgh	1.90	1.85	1.90	2.05
Tank plates, Philadelphia	2.17	2.12	2.07	2.37
Tank plates, Chicago	2.10	2.10	2.10	2.30
Sheets, black, No. 28, Pittsburgh	3.25	3.35	3.35	3.45
Sheets, blue anl., No. 10, Pittsburgh	2.50	2.50	2.50	2.65
Sheets, galvanized, No. 28, Pittsburgh	4.60	4.60	4.60	4.70
Sheets, black, No. 28, Chicago	3.50	3.50	3.50	3.75
Sheets, blue anl. No. 10, Chicago	2.65	2.65	2.65	2.85
Sheets, galvanized, No. 28, Chicago	4.75	4.75	4.75	4.90
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago	2.70	2.70	2.70	3.00
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	17.25	17.60	19.00	18.25
Heavy melting steel, eastern Pa.	16.75	16.35	17.65	16.25
Heavy melting steel, Chicago	14.25	13.75	15.50	16.70
No. 1 wrought, eastern Pa.	18.00	18.00	18.75	19.50
No. 1 wrought, Chicago	14.50	14.40	15.40	16.65
Rails for rolling, Chicago	16.50	16.30	18.55	18.15

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (March 31, 1926)	$38.86
Last week (March 24, 1926)	38.89
One month ago (February, 1926)	38.95
Three months ago (December, 1925)	39.14
One year ago (March, 1925)	40.70
Ten years ago (March, 1916)	37.18
Thirteen years ago (March, 1913)	27.93

Late News Flashes

Plans 125-Mile Railroad Extension

New York, March 30.—St. Louis-San Francisco railroad plans constructing a 125-mile extension to the Muscle Shoals, Birmingham & Pensacola railway, which it recently acquired, according to E. N. Brown, chairman of the board of the former road, after his return today from the Southwest.

Elected Steel Institute Directors

New York, March 30.—R. H. McMaster, president of the Steel Co. of Canada, Ltd., Hamilton, Ont., and Howard M. Hanna of the M. A. Hanna Co., Cleveland, have been elected directors of the American Iron and Steel institute, filling two of three vacancies.

Ingot Output Slightly Higher

Youngstown, O., March 30.—Eighty per cent of the ingot capacity of this district is engaged this week compared with 78 per cent a week ago. Sheetmaking schedules are at 87 per cent representing 110 hot mills. Pipe mills are operating at 85 per cent, bar mills at 90 per cent and tin mills full. The Mattie stack of the A. M. Byers Co., Girard, O., was blown in last week.

Urge Delay on Chicago Drainage Bill

Washington, March 30.—Newton D. Baker, former secretary of war, counsel for the Lake Carriers' association, today asked the house rivers and harbors committee to delay action on a measure to authorize Chicago to divert more than 10,000 cubic feet of water per second through its drainage canal. The case now pending before the Supreme Court involves the whole question of Chicago's rights, and the carriers want a decision before action is taken by congress.

Metal Trim Manufacturers To Simplify

Washington, March 30.—Representatives of manufacturers of hollow metal doors and metal trim, held a conference here today with W. Chattin Wetherill, director of the National Metals Utilization committee, to consider a program of simplified types and sizes and other matters concerning the industry. A committee was named to arrange tentative simplification program for a general conference of manufacturers, distributors, users, building engineers, and architects to be held in Washington later. H. G. Garlock, Cleveland, secretary of the Hollow Metal Door and Trim Manufacturers association, is chairman of this committee. Other members are George Hughes, United Metal Products Co., Canton, O.; E. T. Johnson, Art Metal Construction Co., Jamestown, N. Y., and Ernest C. Probst, Metal Door & Trim Co., LaPorte, Ind.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	40.30 to 41.30
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30 to 46.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00

SLABS

Pittsburgh	$35.00
Youngstown	35.00

WIRE RODS
¼-inch and finer

Pittsburgh	$45.00
Cleveland	45.00
Chicago	46.00

Standard extras, $2.50 per ton over ⅜-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.85c to 1.90c
Universal skelp, Pittsburgh	1.85c to 1.90c
Sheared skelp, Pittsburgh	1.85c to 1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.12c to 2.32c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.85c to 1.90c
Philadelphia	2.12c to 2.22c
New York	2.14c to 2.24c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	1.95c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c to 2.10c
Pittsburgh, cold finishing	2.15c to 2.25c
Pittsburgh, forging quality	2.15c to 2.25c
Philadelphia, soft steel	2.32c
New York, soft steel	2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c to 2.10c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c
Mill rail steel	1.85c to 1.95c
Philadelphia, common iron	2.22c
New York, common iron	2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1⅛ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.90c
Worcester, Mass., Chicago	4.05c to 4.15c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled Pittsburgh, Chicago carloads	2.50c
Less carload	2.75c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—	
2300 (3½ per cent nickel)	4.60c
3100 (Nickel chromium)	3.80c
6100 (Chrome vanadium)	4.40c
6100 (Chrome vanad. spring)	3.85c
9250 (Silico-mang. spring)	3.25c to 3.40c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	23.00 to 25.00
Light rails, 25 to 45 mill g.t.	35.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	3.00c to 3.10c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.25c

Wire Products

To Jobbers in Carloads
F.o.b. Cleveland and Pittsburgh base

Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 pound kegs, subject to card of extras Feb. 1, 1926 over regular wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh, base	3.25c to 3.35c
No. 28, Philadelphia, delivered	3.67c
No. 28, Gary, Indiana Harbor	3.45c
No. 28, Chicago delivered	3.50c

TIN MILL, BLACK

No. 28, Pittsburgh	3.25c to 3.35c
No. 28, Gary base	3.45c

GALVANIZED

No. 28, Pittsburgh, base	4.60c
No. 28, Philadelphia, delivered	4.92c
No. 28, Gary, Indiana Harbor	4.70c
No. 28, Chicago, delivered	4.75c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.50c
No. 10, Philadelphia, delivered	2.82c
No. 10, Gary, Indiana Harbor	2.60c
No. 10, Chicago, delivered	2.65c

AUTOMOBILE SHEETS

No. 22, Pittsburgh, base	4.40c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, base	4.85

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	62½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton
Class B Pipe

Four-inch, Chicago	$53.20 to 54.20
Six-inch and over, Chicago	49.20 to 50.20
Four-inch, Birmingham	44.00 to 45.00
Six-inch and over, Birmingham	40.00 to 41.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60

Standard fittings, Birmingham base $110.00, 6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS
(⅜ x 6-inch, smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS
(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
Tap bolts	30 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off
Stove bolts, 80, 10 and 5 off plus 2½ off in bulk.	
Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS
Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	28.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.75c
**Rivets, 7/16-inch and smaller, Pittsburgh Cleveland	70 and 10 to 70 and 5 off
**Rivets, 7/16-inch and smaller Chicago	70 and 10 to 70 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.30 to 6.40 off
Wrought c.l., Pitts. dist.	6.25 off
Lock Washers, f.o.b. factory	35 off

Pig Iron

More Consumers in Market—Week's Sales Total 100,000 Tons—Shipments Heavy—Prices Steady

WHILE sales of pig iron have not reached the proportion of a widespread buying movement it is evident that new requirements have led to the placing of around 100,000 tons, in the aggregate in various districts in the past week. New York reports sales of 25,000 to 30,000 tons of foundry iron; furnace interests with headquarters in Cleveland booked more than 15,000 tons. Southern Ohio furnaces closed 10,000 tons. A pipemaker in the Birmingham district purchased 12,000 tons of foreign iron. Philadelphia reports an additional order for basic iron amounting to 25,000 tons. Miscellaneous orders continue small, but the number has increased. More inquiries have been issued in the past week than since the first quarter buying movement.

PITTSBURGH, March 30.—The pig iron market is stationary, where it has held for three months. Certain interests look for it to remain there for some time, claiming lower figures will not stimulate buying. Consequently for the first time since the war the market really can be said to be stabilized. Prices on a valley basis are $20 for basic; $20.50 for foundry and malleable, and $21 for Bessemer. Steelworks furnaces are giving full support to merchant stacks to maintain the market. Iron stocks in brokers' hands are lower than at any time in several years. The largest sale recently noted involved 750 tons of foundry iron made by a steelworks furnace at $20.50, base. A valley merchant stack today sold 600 tons of foundry iron at $20.50, base, to a customer having a freight rate of $2.52. Other small sales of foundry and malleable iron for filling in are noted. One Titusville, Pa., consumer is understood to have closed for several hundred tons for second quarter. A majority of buyers may not buy before May 1, including the sanitary ware and radiator manufacturers. Basic sales are lacking. Only small lots of bessemer are changing hands at present.

Boston, March 30.—Pig iron buying for second quarter is developing slowly, but the number of small sales has increased during the past week, and the rate of the melt in the district also has gained as indicated by employment statistics. Prices seem firmer. Differentials are being maintained in the Buffalo and Pennsylvania district. Five hundred tons of No. 2X iron (2.25 to 2.75 silicon) was placed by a Pennsylvania furnace at $22.50, furnace, or $26.15 delivered. Shipments of foreign iron are unabated.

New York, March 30.—It is estimated foundry pig iron sales in this district in the past week totaled 25,000 to 30,000 tons. One consumer took about 20,000 tons. The principal inquiry pending is that from the General Electric Co., which wants around 6000 tons for various plants. Several consumers have contracted for third quarter. It is becoming apparent that many melters three months ago bought more than they needed for first quarter, and the carry-over will be considerable.

Philadelphia, March 30.—Purchase of 25,000 tons of basic early last week by one consumer featured the pig iron market here. Prices averaged around $21.75, delivered. The current basic market is $21.50 to $22, delivered.

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$21.00
Bessemer, Pittsburgh	22.76
Basic, valley	20.00
Basic, Pittsburgh	21.76
Basic, Buffalo	20.00 to 20.50
Basic, del., eastern Pa.	21.50 to 22.00
Malleable, valley	20.50
Malleable, Pittsburgh	22.26
Malleable, del., Cleveland	21.50
Malleable, Chicago	23.00
Malleable, Buffalo	21.00
Malleable, del., eastern Pa.	23.25 to 24.00
No. IX, eastern del., Phila.	23.50 to 24.76
No. IX, Buffalo	22.50 to 23.50
No. 1 foundry, Chicago	23.50
No. 2 foundry, valley	20.50
No. 2 foundry, Pittsburgh	22.26
No. 2 foundry, Buffalo	21.00
No. 2 foundry, Chicago	23.00
No. 2 foundry, Granite City	23.50 to 24.00
No. 2 foundry, Ironton furnace	20.50 to 21.00
No. 2 foundry, del., Cleveland	21.50
No. 2 foundry, del., Phila.	22.76 to 23.39
No. 2 foundry, N. J., tidewater	23.39 to 23.76
No. 2X, eastern del., Phila.	23.26 to 23.89
No. 2X, east. N. J., tidewater	23.89 to 24.26
No. 2X, foundry, Buffalo, furnace	21.50
No. 2X, eastern del., Boston	25.65 to 26.65
No. 2X, Buffalo, del., Boston	25.91 to 26.91
Continental foundry f.o.b. Boston	20.50 to 21.50
India, 2.25 to 2.75 silicon, delivered cars, Boston	21.00 to 22.00
No. 2 Alabama, Birmingham	22.00 to 23.00
No. 2 Alabama, Cincinnati	26.69
No. 2 Tenn., Birmingham	21.50
No. 2 Tenn., Cincinnati	25.19
No. 2 southern, Philadelphia	27.01 to 28.01
No. 2 southern, Chicago	28.01
No. 2 southern, Chicago (barge and rail)	26.18
No. 2 southern, Boston (rail and water)	27.91 to 28.91
No. 2 southern, Cleveland	27.01 to 28.01
No. 2 Southern, St. Louis	25.42 to 26.42
No. 2X, Virginia, furnace	23.00 to 23.25
No. 2X, Virginia, Phila.	28.17 to 28.42
No. 2X, Virginia, Jersey City	28.54 to 28.79
No. 2X, Virginia, Boston	28.92 to 29.17
Gray forge, eastern Pa.	22.50 to 23.00
Gray forge, val. del. Pitts.	21.76
Low phos., standard, valley	28.00 to 28.50
Low phos., standard, Phila.	24.76 to 27.79
Low phos., Lebanon, furnace	23.00 to 24.00
*Low phos., English	24.26 to 24.76
Charcoal, Birmingham	31.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $27.50; 6 per cent $28.50; 7 per cent $29.50; 8 per cent $30.50; 9 per cent $32.00; 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; and 14 per cent $42.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $36.00; 11 per cent $38.00; 12 per cent $40.00; 13 per cent $42.00; 14 per cent $44.00; 15 per cent $46,00; 16 per cent $49.00; 17 per cent $51.50.

*Duty paid, delivered Philadelphia consumers.

A large percentage of melters have placed second quarter foundry requirements, making a considerable total. The Baldwin Locomotive works placed 1000 tons of foundry and 2000 tons of low phosphorus iron. Half was placed for delivery to Chester, Pa. Virginia foundry continues $22.50 to $22.75, base furnace, despite reports of recent sales at $25, base.

Buffalo, March 30.—Pig iron inquiry totals 5000 to 6000 tons. Some former inquiries have been withdrawn temporarily, including one for 5000 tons. Refusal of Buffalo furnaces to shade $21, base, for low silicon foundry and malleable is said to be responsible for this action. One consumer purchased 1000 to 2000 tons. Foreign competition is proving serious against Buffalo iron in New England and at other tidewater points. Sixteen furnaces of 21 in this district are in blast.

Cleveland, March 30.—The beginning of the second quarter finds the number of inquiries for pig iron greatly increased, but the tonnages wanted are small, seldom for requirements beyond April. One or two of the large consumers are sounding out the market, which may result in the placing of 20,000 tons or more in the next week. The General Electric Co. that was inquiring for 5000 tons for various plants a week ago has not closed. The Westinghouse Electric & Mfg. Co. was expected to place 2600 tons for its Cleveland plant with a Cleveland furnace interest early this week. Sales by furnace interests with headquarters here last week totaled around 15,000 tons, substantially the same as the week prior. Shipments continue heavy; furnaces have been shipping more than their output, but new orders have been coming in at a slower rate than production. In the Cleveland district a number of the leading melters still have considerable iron coming to them on contracts for the first quarter. New business generally is limited to carload lots, and the ruling price continues $21, base, furnace. One Cleveland maker continues to sell pig iron in outside competitive territory on a basis of $20, valley, although the majority of valley furnaces are holding $20.50. A number of sales at $21, base, Buffalo, are noted. The lake furnace price for sales in Michigan, Indiana and western

(*Concluded on Page* 896)

Coke

Connellsville Production Curtailed — Market on Furnace Grade Down to $3

CONNELLSVILLE oven operators are beginnnig to curtail production, with the market on furnace coke down to $3 and the foundry grade selling as low as $4. Additional contracts have been closed by furnace interests. The market for by-product coke continues to show weakness as weather conditions improve. A reduction is expected in second quarter schedules.

Pittsburgh, March 30.—Additional second quarter coke contracts have been placed by blast furnaces at $3 to $3.25. One valley stack purchased part of its requirement at $3. Another received $3.25 as a quotation and is endeavoring to buy at $3. One or two stacks expecting to operate in the second quarter have yet to close. Some users are talking about buying for April only. A few makers still are quoting $3.35 and higher. Some arrangements have been made by nonmetallurgical users at a price above $3.25. One eastern public utility inquiring for 10,000 tons monthly for a year from April 1 closed at below $3.50. Foundry coke has sold as low as $4, and some producers holding for $4.75 have lost considerable business to oven operators quoting $4.50 and $4.25. Premium brands still are $5 and higher. Because present minimums are too low for profitable operation, more ovens are going out. Considerable curtailment in output is expected in the next few weeks.

Production of coke in the Connellsville region for the week ended March 20 was 190,010 tons, as compared with 188,990 tons the preceding week, according to the *Connellsville Courier*.

New York, March 30.—By-product foundry coke continues quotable at $10.34 to $11.52, delivered at Newark and other northern New Jersey points, depending on freight rates. It is indicated, however, that a reduction will be made, effective April 1. A fair volume of business is being done in beehive coke. The foundry grade is $4.25 to $5.50, Connellsville, and furnace fuel is $3 to $3.50, Connellsville.

Cincinnati, March 30—Heavy specifications for April are reported by all producers of by-product foundry coke. A gas company at Richmond, Ind., is inquiring for 9000 tons of furnace coke for shipment at the rate of 3000 tons a month. The Louisville & Nashville railroad bought 750 tons of foundry fuel for second quarter. The Ashland and Portsmouth By-Product Coke companies have reduced domestic prices $2 a ton. The new schedules are egg and walnut $5 and No. 2 nut $4.50 ovens. The foundry grade has been reduced from $8.50 to $8, ovens. The Indianapolis maker also has announced a 50-cent reduction.

Chicago, March 30. — By-product foundry coke is going unchanged into the second quarter at $10.50, Chicago ovens, or $11, delivered Chicago. The demand is such that oven capacity is engaged practically 100 per cent.

St. Louis, March 30.—The movement of metallurgical coke is holding up well, though purchasing continues largely for immediate requirements. Service by by-product ovens and transportation companies has been such as to discourage accumulations at users' plants. Shipments of industrial coke are in large volume. Prices are unchanged.

Birmingham, Ala., March 29.—Demand for coke continues steady and production in the Birmingham district is unchanged. Quotations are firm, with $5.50 as the base price for foundry coke. Occasional spot order command $6. The market looks strong enough to warrant production as at present through the first half of year.

Coke Prices

Beehive, Ovens

Prices per net ton	
Connellsville furnace	$ 3.00 to 3.35
Connellsville foundry	4.00 to 4.75
New River foundry	7.50 to 8.00
New River furnace	5.25 to 5.50
Wise county furnace	4.00 to 4.25
Wise county foundry	5.00
Alabama foundry	5.50 to 6.00
Alabama furnace	5.00 to 5.25

By-Product

Foundry, Newark, N. J.; del.	$11.01 to 11.52
Foundry, Chicago, ovens	10.50
Foundry, New England, del.	13.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	10.75

Ferroalloys

Ferromanganese Offered at $88—Contracts Being Adjusted

Pittsburgh, March 30.—The price decline has not been fully checked in ferromanganese. This is accompanied by contract adjustments. Late last week some $88 prices appeared on domestic ferromanganese. While E. J. Lavino & Co. had made contract adjustments to the $90 level, it issued no quotations below $95, having filled up with tonnage it desired for the remainder of the year at that level. To date practically 95 per cent of the tonnage to be bought for April to December inclusive, has been placed under commitment. The English price continues at $110, c.i.f. Atlantic seaboard. German material is also held at $110 seaboard. Other alloys are unchanged as to price, with demand centered on specifications against contracts. Spiegeleisen prices are unchanged and firm, material being scarce for future delivery, especially high grade. Ferrosilicon, 10 to 12 per cent, has been active, three or four carloads having been closed late last week by as many buyers. Prices are firm for prompt and second quarter at quoted levels. One buyer now wants 300 tons for the latter period.

New York, March 30.—For the first time in about 18 months English spiegeleisen again is a factor in the United States market. Several hundred tons has been sold to middle western consumers for the third quarter. It is understood the price was $34.25, New Orleans, for the 19 to 21 per cent grade. Domestic sales are small. The bulk of ferromanganese requirements now are under contract. The market for domestic material is $88 to $90, duty paid tidewater.

Special ferroalloys are in a steady market. Shipments again are of large size after some falling off early in the month. The total for March probably will be about as large as in the preceding two months. Some ferrotungsten might be had about $1.10 a pound, contained, but the general asking price is about $1.17 or higher. Wolframite, tungsten ore, continues in a weak market, especially on account of several lots pressed on the market by speculators who have held spot supplies for some time. Some is offered at $11.75 a short ton, but prices are mostly around $12.

Promotes Foreign Trade

Washington, March 30.—Opportunity to better foreign trade by American iron and steel manufacturers is offered in the pamphlet on this subject by the foreign commerce department of the chamber of commerce of the United States. The booklet is intended to place before importers and exporters the names and locations of American chambers of commerce abroad and representatives of the United States department of commerce in foreign countries.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resales	$88.00 to 110.00
Ferromanganese delivered Pittsburgh	92.79 to 114.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, per pound contained	1.10 to 1.17
Ferrochrome, 60 to 70 chromimum, 6 to 8 carbon, cents per pound contained, delivered	11.00 to 11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 4.00
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent materials)	122.50

†Duty paid.

Plates

Eastern Buyers Contract for Second Quarter—Car Builders Take Large Tonnage

PLATE demands show an improvement, and the market today appears firmer at 1.90c, Pittsburgh. Eastern mills have closed many contracts for second quarter. Car builders in the Chicago district have specified another 30,000 tons of steel, mainly plates. About 10,000 tons of plates are on inquiry for tanks. The market at Pittsburgh is quiet.

PLATE PRICES, PAGE 884

Pittsburgh, March 30.—While some additional plate orders are due from car building shops, demands still are small and many mills need tonnage. An inquiry is expected soon from the Humble Oil & Refining Co. for a large number of tanks since it recently bought 30 acres of land at Bruni near the Mirando pool, Texas, where it plans a group of tanks. Boiler shops are fairly active although individual orders usually involve 100 to 250 tons. Some attractive river barge and tow boat business is expected to develop within the next month or two. Local plate sellers are maintaining a 1.90c minimum.

Boston, March 30.—Plate sales are small, but new work has more promise. Several prospective bridges in Rhode Island and Massachusetts will require a round tonnage. A leading eastern producer has marked up prices to 1.90c, Pittsburgh, or 2.265c, delivered, and prices generally are firmer, although 1.80c, Pittsburgh, still is quoted.

Philadelphia, March 30.—Plate mills report many second quarter contracts have been signed at 1.90c, Pittsburgh, although 1.80c has not disappeared. Current specifications are heavy. About 3000 to 4000 tons are pending for gas holders. Certain mills have advised their trade 1.80c will be minimum after April 1.

Chicago, March 30.—Western car builders have again specified 30,000 tons of steel, mostly plates. This comes close to meeting the steel requirements for all equipment placed in the first quarter but does not include 20,000 tons for the Northern Pacific automobile cars just placed. Although considerable oil storage tank work is pending, a decline in inquiry is noted. The Roxana Petroleum Corp., St. Louis, is in the market for 6000 tons for a start on its East Chicago, Ind., refinery project. Inquiry from the Pan-Handle field in Texas totals 3000 tons, while an Arkansas project requires 800 tons. Specifications for plates have been exceeding shipments and as a general rule rollings are greatly enlarged before they have been concluded. Plates are quoted at 2.10c, Chicago.

Cleveland, March 30.—Immediate requirements continue to compose the only activity in the local plate market. While some second quarter contracting has been done in other finished steel products, plates continue to be sold to fill prompt needs. Lack of large lot competition has aided in establishing the market at 1.90c Pittsburgh or 2.09c Cleveland, 1.80c Pittsburgh having disappeared except on old contracts. Two carferries for the Canadian National railways, taking 5000 tons, first sought last July, are active again.

Bids will be opened by the government April 1 on two scout cruisers, one to be built in a government yard and the other in a private yard. A total of about 12,000 tons of steel, largely plates, is involved.

CONTRACTS PLACED

3200 tons, four carfloats taking 800 tons each, for Pennsylvania railroad, to Wm. Cramp & Sons, Ship & Engine Building Co.

1000 tons, 1,500,000-cubic foot capacity gas holder for Stamford Gas & Electric Co., Stamford, Conn., to Stacey Mfg. Co.

500 tons, 500,000-cubic foot capacity gas holder for Illinois Northern Utilities Co., Dixon, Ill., to Stacey Mfg. Co.

300 tons, oil tank for the Mexican Petroleum Oil Co., to the Chicago Bridge & Iron Works.

100 tons, plates and blue annealed sheets, pipe line at Mt. Shasta, Calif., to Montague Pipe & Steel Co.

CONTRACTS PENDING

12,800 tons, pipe line at San Diego, Calif.; opening of bids postponed to April 5.

6000 tons, Roxana Petroleum Corp., St. Louis, for refinery at East Chicago, Ind.; pending.

5000 tons, two carferries for Canadian National railways; first inquired for in July, active again.

1400 tons, gas holder for unstated city in Japan; pending.

1000 tons, gas holder for unstated New England city; pending.

500 tons, pipe line at The Dalles, Oreg.; previously reported going to Beall Tank & Pipe Co. Bids rejected and new bids were to be opened March 29.

320 tons, pipe line, Spokane; bids in April 1.

Will Sell Charcoal Iron

Cincinnati, March 30. — Rogers, Brown & Crocker Bros., Inc., have been appointed sales agents for the sale of charcoal iron produced by the Michigan Iron & Chemical Co., at its plant at East Jordan, Mich.

Hardware Mfg. Co., Detroit, has changed its capitalization from $40,000 to 800 shares no par value.

Semifinished

Buyers Delay Placing Contracts—Large Tonnage of Billets Carried Over

USERS of semifinished material continue to place orders cautiously, for immediate needs, and comparatively few contracts have been closed for second quarter. The market still is quotable at $36, Pittsburgh, for sheet bars and $33 for standard billets and slabs. A large tonnage of small billets due in first quarter remain unspecified.

SEMIFINISHED STEEL PRICES, PAGE 884

Pittsburgh, March 30.—Buyers of semifinished steel are postponing action as long as possible. Some owe specifications on first quarter contracts, mainly for small billets, and a large tonnage will be carried over. Several billet users may have enough to last them through April. Prices quoted on negotiations under way are the same as for the first quarter, $35 on 4 x 4-inch billets and 2 x 8-inch slabs, plus $1 for small sizes. Forging billets are being sold for the next quarter at $40. Several customers have protected themselves on their requirements. Several sheet bar contracts are up for renewal at $36 but the buyers are moving slowly. Wire rod tonnage this month has been heavier than for either January or February. The price on new negotiations is unchanged at $45 and several users are about ready to close for second quarter. Skelp is inactive with prices still unchanged.

Youngstown, O., March 30.—Lack of buying demand continues in the semifinished market. While a few consumers of sheet bars have contracted for second quarter requirements, many users have made no effort to protect themselves. Sheet bars on a contract basis or for early delivery are quoted at $36, Youngstown, and standard billets and slabs $35, Youngstown.

Cleveland, March 30.—Some further contracts for sheet bars, billets and slabs for second quarter have been placed with a Cleveland mill at trade paper quotations. Open market sales are restricted to small lots on a basis of $36, valley, for sheet bars, and $35, valley, for billets and slabs.

The McKinney Steel Co. has increased operation of its open hearths from seven to eight.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	$13.00 to 14.00
Boston (dealers)	11.00 to 11.50
Buffalo	15.25 to 15.75
Buffalo, No. 1	16.25 to 16.75
Chicago	14.00 to 14.25
Cincinnati (dealers)	12.50 to 13.00
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	13.50 to 14.00
Detroit	14.75 to 15.25
Eastern Pennsylvania	16.00 to 16.75
Bethlehem delivery	15.50
New York (dealers)	11.50 to 12.00
Pittsburgh	17.00 to 17.50
St. Louis	13.50 to 14.00
Valleys, No. 1	17.00
Valleys, No. 2	15.00 to 16.00

COMPRESSED SHEETS

Buffalo	14.25 to 14.75
Chicago	12.00 to 12.50
Cleveland	13.50 to 14.00
Detroit	12.50 to 13.00
Pittsburgh	15.50 to 16.00
Valleys	15.50 to 16.00

BUNDLED SHEETS

Buffalo	13.50 to 14.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	11.50 to 12.00
Eastern Pennsylvania	13.50
Pittsburgh	14.50 to 15.00
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE

Chicago	8.00 to 8.50
Cincinnati	8.00 to 8.50
Detroit	9.75 to 10.25

STEEL RAILS, SHORT

Birmingham	14.00 to 15.00
Buffalo	17.00 to 17.50
Chicago	17.75 to 18.25
Cincinnati (dealers)	17.50 to 18.00
Cleveland (over 6 ft.)	15.00 to 16.00
Detroit	17.00 to 17.50
St. Louis	17.00 to 17.50

STOVE PLATE

Birmingham	14.00 to 14.50
Boston (consumers)	13.50 to 14.00
Buffalo	15.00 to 15.50
Chicago	15.75 to 16.00
Cincinnati (dealers) (net)	9.00 to 9.50
Cleveland	13.00 to 13.50
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	10.25 to 10.75
Pittsburgh	13.50 to 14.00
St. Louis	14.75 to 15.25

LOW PHOSPHORUS

Buffalo	17.75 to 18.25
Cincinnati (dealers)	17.00 to 17.50
Eastern Pennsylvania	20.00 to 21.00
Pitts. billet and bloom crops	21.50 to 22.00

SHOVELING STEEL

Chicago	13.75 to 14.00
Pittsburgh	13.00 to 13.50
St. Louis	13.00 to 13.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	17.25 to 17.75
Eastern Pennsylvania	19.00 to 21.00
Pittsburgh	19.00 to 19.50
St. Louis	14.50 to 15.00

FROGS, SWITCHES, GUARDS

Chicago (cut)	15.25 to 15.75
Eastern Pennsylvania	16.00 to 16.50
St. Louis	15.00 to 15.50

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	16.00 to 16.50
St. Louis	14.50 to 15.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	$12.00 to 13.00
Boston (dealers)	13.00 to 13.50
Buffalo, No. 1	14.00 to 14.50
Buffalo, No. 2	15.50 to 16.00
Chicago, No. 1	14.50 to 15.00
Chicago, No. 2	14.00 to 14.25
Cincinnati, No. 1 (dealers)	9.50 to 10.00
Cleveland, No. 1	13.50 to 14.00
Eastern Pennsylvania	18.00
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	13.00 to 13.50
Pittsburgh, No. 2	17.00 to 17.50
St. Louis, No. 1	13.00 to 13.50
St. Louis, No. 2	13.50 to 14.00

WROUGHT PIPE

Boston (dealers)	11.00 to 11.50
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	12.25 to 12.75

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00

BUSHELING

Buffalo	14.25 to 14.75
Chicago, No. 1	12.25 to 12.75
Chicago, No. 2	9.00 to 9.50
Cincinnati, No. 1 (dealers)	9.50 to 10.00
Cleveland, No. 1	12.00 to 12.50
Cleveland, No. 2	11.50 to 12.00
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	15.00
St. Louis, No. 1	11.50 to 12.00

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston (chemical)	8.50 to 9.00
Buffalo	11.50 to 12.00
Chicago	9.50 to 10.00
Cincinnati (dealers)	8.00 to 8.50
Cleveland	11.00 to 11.50
Detroit	10.25 to 10.75
Eastern Pennsylvania	14.00
New York (dealers)	9.00 to 10.25
Pittsburgh	13.00 to 13.50
St. Louis	7.50 to 8.00

CAST IRON BORINGS

Birmingham (chemical)	15.50 to 16.50
Birmingham (plain)	8.00 to 9.00
Boston (chemical)	11.00 to 11.25
Boston (dealers)	8.50 to 9.00
Buffalo	12.50 to 13.00
Chicago	12.00 to 12.25
Cincinnati (dealers)	8.50 to 9.00
Cleveland	11.50 to 12.00
Detroit	10.75 to 11.25
Eastern Pennsylvania	14.00
Eastern Pennsylvania (chem.)	15.50 to 16.00
New York (dealers)	9.25 to 10.25
Pittsburgh	13.00 to 13.50
St. Louis	10.50 to 11.00
Valleys	12.50 to 13.00

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.50 to 9.00
Buffalo	12.50 to 13.00
Cincinnati (dealers)	8.00 to 8.50
Cleveland	11.50 to 12.00
Detroit	10.75 to 11.25
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.75 to 10.25
Pittsburgh	13.00 to 13.50

PIPES AND FLUES

Chicago	12.00 to 12.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	11.00 to 11.50
St. Louis	10.00 to 10.50

RAILROAD GRATE BARS

Buffalo	13.50 to 14.00
Chicago	15.00 to 15.50
Cleveland	13.50 to 13.75
Eastern Pennsylvania	14.50
New York (dealers)	11.25 to 11.75
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	13.00 to 13.50
Chicago	10.00 to 10.50
Cleveland (under 10 in.)	12.00 to 12.50
Cleveland (over 10 in.)	12.00 to 12.50
Detroit	10.50 to 11.00
Pittsburgh	14.00 to 14.50

FORGE SCRAP

Boston (dealers)	9.00 to 9.50
Chicago	18.00 to 18.50
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	23.00 to 23.50
St. Louis	20.50 to 21.00

Iron Steel Works Scrap

AXLE TURNINGS

Boston dealers	$9.50 to 10.00
Buffalo	14.50 to 15.00
Chicago	14.50 to 15.00
Cleveland	13.75 to 14.25
Eastern Pennsylvania	15.00
Pittsburgh	16.00 to 16.50
St. Louis	10.50 to 11.00

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Boston (shipping point)	15.00 to 15.50
Buffalo	16.50 to 17.00
Chicago	19.50 to 20.00
Cleveland	17.50 to 18.00
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	22.00 to 22.50
St. Louis	20.00 to 20.50

SHAFTING

Boston (shipping point)	17.50 to 18.00
Chicago	19.75 to 20.25
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	17.50 to 18.00
St. Louis	17.25 to 17.75

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	$16.00 to 16.50
Boston (consumers)	17.50 to 18.00
Buffalo, iron	15.50 to 16.00
Buffalo, steel	16.50 to 17.00
Chicago, iron	16.75 to 17.25
Chicago, steel	18.00 to 18.50
Cincinnati	12.50 to 13.00
Eastern Pennsylvania	18.00 to 18.50
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	17.50 to 18.00
Pittsburgh, steel	19.00 to 19.50
St. Louis, iron	16.50 to 17.00
St. Louis steel	17.00 to 17.50

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 18.00
Boston	19.00 to 19.50
Buffalo	15.50 to 16.00
Chicago, No. 1 machinery	18.75 to 19.25
Chicago No. 1 railroad or agricultural	17.75 to 18.00
Cincinnati No. 1 Machinery cupola (net tons dealers)	18.50 to 19.00
Cleveland, cupola	17.25 to 17.75
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.00 to 18.50
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	17.00 to 17.50
San Francisco, delivered	20.00 to 21.00
Seattle	17.00
St. Louis, railroad	16.50 to 17.00
St. Louis, agricultural	16.25 to 16.75
St. Louis, machinery	18.50 to 19.00
Valleys	17.50

HEAVY CAST

Boston	17.50 to 18.00
Buffalo (breakable)	14.50 to 15.00
Cleveland	13.00 to 13.25
Detroit (Automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	14.00 to 14.50
Pittsburgh	15.00 to 15.50

MALLEABLE

Boston, railroad	19.50 to 20.00
Buffalo	18.00 to 18.50
Chicago, agricultural	16.50 to 17.00
Chicago, railroad	17.50 to 18.00
Cincinnati, railroad (dealers)	14.50 to 15.00
Cincinnati, agricultural (dealers)	18.00 to 18.50
Cleveland, agricultural	18.00 to 18.50
Cleveland, railroad	19.00 to 19.50
Detroit	15.50 to 16.00
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	18.50 to 19.00
St. Louis, agricultural	13.50 to 14.00
St. Louis	16.00 to 16.50

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	$15.00 to 16.00
Boston (dealers)	12.50 to 13.50
Buffalo	17.00 to 17.50
Chicago	16.50 to 17.00
Cleveland	17.00 to 17.25
Eastern Pennsylvania	17.50 to 18.00
New York	14.00 to 14.50
Pittsburgh district	19.00 to 19.50
St. Louis	16.00 to 16.50

LOCOMOTIVE TIRES

Chicago, No. 1	18.50 to 19.00
Chicago, cut	18.00 to 18.50
St. Louis, No. 1	16.50 to 17.00

LOW PHOSPHORUS PUNCHINGS

Chicago	17.25 to 17.75
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 20.50

Scrap

Waiting Attitude Continues But Tonnage Is Covered Quietly by Some Users

LITTLE activity has appeared in the market for iron and steel scrap and trading is quiet. Yet consumers manage to keep a comfortable reserve of material in the face of large consumption, showing sales must be going on below the surface. Railroad offerings command some premium over the nominal market, indicating dealer faith in the future. Prices are little changed.

Chicago, March 30.—Expanding dealer trading in heavy melting steel scrap at $14, some of it apparently short selling, indicates an increasing lack of confidence in present iron and steel scrap levels. The market continues largely in buyers' hands, with most orders small and for speedy delivery, thus restricting dealers' covering activity. Some recent offerings of railroad scrap have been bringing 25 to 50 cents over the market, but these prices seem actuated by individual reasons. The market is at $14 to $14.25 for heavy melting steel, with a shade less strength than a week ago.

Boston, March 30.—Dealer activity in iron and steel scrap has shown improvement. The Boston & Maine railroad sold 2000 tons of miscellaneous scrap at prices generally above the market. Heavy melting steel brought $13 shipping point.

New York, March 30.—Scrap prices are unchanged as for more than a month. With supplies coming out somewhat more freely from producing centers, some trade interests regard a slight downward movement as likely. Others look for a revival in consuming demand to exert a steadying influence. A feature of recent trading is the placing of around 15,000 tons of railroad steel, or equivalent by a Coatesville consumer. This business was reported as going at $16.75 or $17, delivered.

Philadelphia, March 30.—A large steel mill has bought 5000 to 6000 tons of heavy melting steel at $16.75 delivered and is negotiating tonnage. Most Eastern mills now are covered for April and May. Considerable bundled sheets and turnings are bought at $14 delivered.

Buffalo, March 30.—Reports are current that a Buffalo melter has bought or is negotiating for the purchase of a tonnage of heavy melting steel. The price mentioned is $15.50. Some other consumers confirm reports that dealers are not inclined to consider lower prices and that for best grades the price is nearer $16.50. Dealers are buying on a fairly good scale.

Pittsburgh, March 30.—The scrap market is practically at a standstill. This is the week before the Pennsylvania railroad's scrap list closes, during which little usually is done but mills are not showing interest in additional supplies. A few pick-up sales of a carload or two are noted as opportunity presents. Prices are unchanged with heavy melting steel at $17 to $17.50.

Detroit, March 30.—Actual demand for iron and steel scrap continues weak. Conditions show no marked turn for the better. Large consumers continue to show little interest in offerings and tonnage being moved except by automobile plants, which have exchange agreements with mills, is small.

Cleveland, March 30.—Iron and steel scrap transactions continues in light volume. Consumers appear well stocked although one steelmaker in this district took a tonnage of mixed borings and turnings a few days ago, the first movement of the kind noted in some time.

Cincinnati, March 29.—With consumers taking more tonnages on contracts a better feeling pervades the iron and steel scrap market. New business continues of small consequence. Not a railroad list of size is pending and this has tended to stabilize the market. Dealers' buying prices are holding firm.

St. Louis, March 29.—The iron and steel scrap market is dormant and feeble. The consumers are confining their purchases to current needs and even on these small quantities are contending strenuously for lower prices. Contracting for future requirements is the lowest in a long while. Railroads are doing fairly well and continue to market heavily. The strength of railroad prices is construed as meaning industries are bidding direct. Lists before the trade include: Canadian National, 1700 tons; St. Paul, 1000 tons; Wabash, 3000 tons; Frisco 1750 tons; Missouri Kansas & Texas, 300 tons; Union Pacific, 3000 tons; Chicago, Burlington & Quincy, 6000 tons and Dodge Brothers, 8000 tons.

Birmingham, Ala., March 29.—Few cancellations of contracts have taken place which gives encouragement in iron and steel scrap. Larger consumers of scrap give no signs of early lagging in operations. Rerolling rails will be in greater demand when Connors Steel Co. starts its new plant on reinforced concrete bars in May.

Sheets

Specifications Larger—Motorcar Builders Taking Larger Tonnages

A FEW contracts for second quarter taken by the larger companies at full market prices, and more attractive specifications especially from motorcar manufacturers are the features of the sheet market. A Detroit consumer placed a large tonnage of full finished sheets with a valley producer. Fewer mills are making concessions on black sheets, and 3.35c is firmer.

SHEET PRICES, PAGE 884

Youngstown, March 30.—Sheet sales show no appreciable increase. The volume of tonnage coming to mills in this district is sufficient to keep 87 per cent of hot mills engaged although at some plants a five day schedule is in effect. Mixed expression is found as to the present status of orders. Some producers find a laggard market as a result of the disposition of many consumers to withhold purchasers. They report little contracting is being done, most of the current placements being for immediate delivery. Many of the large makers, however, are entering contracts for second quarter tonnages from regular customers at the full prices. They are experiencing no interruption in the volume of business being placed. Prompt shipment still is available. Prices continue unchanged with black sheets quoted at 3.25c and 3.35c, Pittsburgh, depending on whether or not the mill is in need of immediate rolling. Blue annealed is quoted at 2.50c, Pittsburgh, and galvanized at 4.60c, Pittsburgh. Not much demand exists for galvanized nor are producers expending much effort to push sales of this grade. Full finished sales show no signs of decreasing. One Detroit consumer placed a large tonnage last week. The price of this grade continues at 4.40c, Pittsburgh, for No. 22 gage.

Boston, March 30.—Forward buying of sheets for second quarter is slower than in several years. First quarter contracts have been completed at practically full tonnage. Galvanized sheets are firm at 4.60c, Pittsburgh, but black and blue annealed sheets are soft.

Buffalo, March 30.—Sheetmakers report greater firmness in prices this week. Black sheets are said to be 3.35c, Pittsburgh, as minimum. Second quarter bookings are fairly good. Buffalo mills are operating at 80 per cent of capacity.

Pittsburgh, March 30.—Sheet speci-

fications have been more active and representative companies had the best week since early in the year. Business still is much diversified. It includes some attractive full finished tonnage for automobile manufacturers as well as other grades used by them; fairly large tonnages for railroad cars, as well as galvanized sheet tonnage for car roofs; some blue annealed sheet orders for various purposes, together with medium size tonnages of different grades for agricultural implement manufacture in the Middle West. Individual orders are not large but in the aggregate they are sufficient to maintain operations for the American Sheet & Tin Plate Co. at above 80 per cent, and for independents at an average of 85 to 88 per cent. Only small lots are being sold abroad. Prices are firmer than they have been, and concessions under 3.35c on black are fewer.

Chicago, March 30.—Black and galvanized sheets have been in relatively better demand than blue annealed the past week, reversing the experience of recent weeks and bringing a better balance. Specifications and orders for black sheets have been outstanding. Demand for corrugated and other forms of roofing indicates spring trade is opening up. Pressure for delivery continues pronounced. In many instances users are asking that orders which are about to be shipped be increased. Second quarter contracting has gained ground. It appears that March is setting a new high monthly record for sheet output in this district. Prices are unchanged at 4.75c, Chicago, for galvanized, 3.50c for black and 2.65c for blue annealed.

Tin Plate

Mills Continue at High Rate—Backlogs Being Reduced

TIN PLATE PRICES, PAGE 884

Pittsburgh, March 30.—Tin plate makers' backlogs are being reduced to some extent but all mills are busy at 90 to 100 per cent of capacity, giving a general average of about 95 per cent. Most makers still have enough business on hand for some time at those schedules. The American Sheet & Tin Plate Co. is working at slightly higher than 90 per cent, and next Monday will put on its Pittsburgh works at New Kensington, Pa., idle for about two years. The open market price is unchanged at $5.50. Announcement concerning the price for last half is not expected for another month or more. Comparatively high figures are being secured on stock plate, suitable material being scarce.

Sell German Fluorspar

New York, March 26.—Several hundred tons of German fluorspar, 85 and 5 per cent grade, have been sold in the last few days at $17 to $18 per net ton, duty paid tidewater.

Strip Steel

Consumers Covering Second Quarter in Good Volume

STRIP PRICES, PAGE 884

Pittsburgh, March 30.—Contracts are being signed by diversified industries for second quarter requirements of hot and cold strips. Tonnages are larger than for first quarter. While some reports of shading on cold strips drift through from the West, this is not interfering with local manufacturers obtaining fairly large tonnages at 3.90c. On hot strips the price is firmly entrenched at 2.30c. Operating average at 70 to 80 per cent is held down somewhat by lower schedules in cold strip manufacture.

Pipe

Oil Country Activity Increases Mill Operations—Cast Buying in Midst of Spring Rush

EXPANDING demands of oil country buyers for tubular products is increasing mill activity. Several large makers are operating full. One order of 3450 tons of 8-inch line pipe was placed last week. Cast pipe buying is in full swing, heavy awards of the previous week being maintained. Foreign pipe has reached Iowa points, by way of Mississippi river to St. Louis.

PIPE PRICES, PAGE 884 AND 922

Pittsburgh, March 30.—Pipe demand continues to expand. More and more orders are coming through, particularly for oil country goods, together with a fair sprinkling of standard full weight merchant pipe orders from jobbers. Some of the valley mills lately have been receiving some small and medium-sized line pipe orders from the West. Republic Iron & Steel Co. is understood to have booked an order for 45 miles of 8-inch line pipe from a Warren, Pa., interest, taking about 3450 tons. Several orders from jobbers of late have involved eight or 10 carloads apiece. This increased business again is reflected in expanding operations. Several plants including the Jones & Laughlin Steel Corp., Spang-Chalfant & Co., Republic Iron & Steel Co., and others are operating full. The Youngstown Sheet & Tube Co. has increased its pipe mill operations from 85 to 90 per cent and the National Tube Co. as well as the Wheeling Steel Corp., are about on the same basis.

Boston, March 30.—Eastern pipe foundries are well booked with New England tonnage and are somewhat independent concerning nearby awards. Prices are unchanged, but the concessions on large sizes are less freely offered. A German interest was low on 2700 tons for Quincy, Mass., but new bids are called for.

New York, March 30.—An award of 3500 tons for White Plains, N. Y., features an otherwise quiet week in cast pipe. Good-sized tonnages are pending, however, so that the market continues to reflect an active aspect. Prices are holding steady, with Eastern foundries booked up two and three months on the smaller sizes.

Chicago, March 30.—Shipments of cast iron pipe gained on new business the past week largely because of the heavy cleanup of pending business recently. New business probably equalled shipments in March. Milwaukee is taking bids April 8 on nearly 2000 tons of pipe and fittings in addition to a like tonnage now pending. The range on cast iron pipe 6-inch and over continues $41 to $42, Birmingham, and $49.20 to $50.20, Chicago.

Gulf Pipe Line Co. has tentative plans for constructing an 8-inch pipe line for oil from Panhandle, Tex., field, to Ranger pump station, 250 miles, taking about 18,750 tons of steel. Sheehan Pipe Line Co., Tulsa, Okla., will construct a 4 and 6-inch line, for Prairie Pipe Line Co., a distance of 20 miles. About 750 tons of steel is involved. Marland Oil Co. has awarded contracts to Geo. H. Greenan Co. for 28-mile, 8-inch welded line taking about 2100 tons of steel. A shipment of cast iron pipe from Europe has been received in Iowa, having gone up the Mississippi river by boat and then by rail to destination.

Birmingham, Ala., March 29.—Activity by cast iron pipe plants is assured for several months, recent lettings being in better volume. Alabama cast iron pressure pipe plants will begin on some heavy tonnages for South America and the far West of this country. Quotations are steady at $40 to $41 on six-inch and over pipe. Soil pipe is in better demand and production somewhat increased.

CONTRACTS PLACED

3500 tons, 6 to 24-inch pipe, White Plains, N. Y., to the Warren Foundry & Pipe Co., noted in a previous issue as low bidder.
1000 tons, Barberton, O., to James B. Clow & Sons.
1000 tons, Akron, O., to United States Cast Iron Pipe & Foundry Co.
450 tons, Chicago, to United States Cast Iron Pipe & Foundry Co.
775 tons, Springfield, Ill., to United States Cast Iron Pipe & Foundry Co.
140 tons, Lancaster, O., to United States Cast Iron Pipe & Foundry Co.
242 tons, 4 and 6-inch class B pipe for San

Diego, Calif., to McWane Cast Iron Pipe Co.

CONTRACTS PENDING

3500 tons, 24-inch class B pipe, Santa Monica, Calif.; B. Nicoll & Co. low bidders.
2700 tons, Quincy, Mass.; bids opened March 25, New bids being taken.
2280 tons, 36 to 48-inch pipe for Milwaukee; United States Cast Iron Pipe & Foundry Co. low at $49.60 f.o.b. Milwaukee. Bid on 94½ tons of lugged pipe was $66.90.
1750 tons, pipe and 122 tons of fittings, Milwaukee; bids in April 8.
1700 tons, 24-inch, Danvers, Mass.; B. Nicoll & Co. representing French makers, low bidders.
1440 tons, 30 to 48-inch plain pipe, 333 tons lugged pipe and 122 tons special casting, Milwaukee; bids in April 8.
600 tons, Staunton, Ill.; bids in April 6.
419 tons, Brookline, Mass.; bids open April 2.
100 tons to 150 tons, Everett, Mass; bids open April 5.

Bolts, Nuts, Rivets

Heavy Specifications Previously Hold Back Present Rate

NUT AND BOLT PRICES, PAGE 884

Chicago, March 30.—Specifications for bolts and nuts from the automobile industry are holding up but from other sources they continue to taper off. This is largely a seasonal condition, resulting from the exceptional demand in the first 60 days of the quarter. May is expected to show its customary comeback. Backlogs of western makers have been sufficient to maintain works operation close to 75 per cent. Considering the season stove manufacturers are specifying heavily. Second quarter contracting has been on substantially the same level as first quarter. Prices of bolts, nuts and rivets are generally unchanged.

Iron Ore

Market Active—1,000,000 Tons Under Negotiation

Cleveland, March 30.—Demand for Lake Superior iron ore continues fairly active. Producers do not anticipate all the requirements for the year will be closed this spring, but that additional tonnage will be purchased in the fall. Merchant furnace interests are leaning more to this method of buying, to maintain flexibility in production. About 1,000,000 tons of iron ore is being negotiated in the open market. A St. Louis furnace interest is understood to be in the market for about 200,000 tons. The Ford Motor Co. has purchased approximately 275,000 tons, orders being distributed among four producers. Vessel rates have not been announced, but ore producers expect they will be the same as those which were in effect last year.

Link-Belt Co., Chicago, has increased its capital from $7,750,000 to $9,250,000.

Bars

Buying Continues Greater Than Production and Deliveries Lag—Prices Are Steady

ALTHOUGH soft steel bar users are limiting their buying to current or pressing needs, contracting for second quarter being the exception, mills are losing ground in the effort to keep deliveries prompt and they are becoming more deferred. Chicago mills find the buying rate as heavy as at any period of their history. No sign of slackening is apparent.

BAR PRICES, PAGE 884

Chicago, March 30.—Soft steel bar production in March has been as heavy as at any time in the history of this district and shipments have been correspondingly great, yet specifications are being passed to mills at a rate exceeding shipments. New business is practically equal to shipments. Rollings usually are doubled and tripled before finally being concluded and as a result deliveries have become further deferred. In many instances consumers press for additional tonnage on shipments about to be made. Producers claim to see no evidence of curtailment of industrial operations in Chicago territory. March daily average of orders exceeded February and January and with one interest inquiry the past week was the best in a month. Practically all of this month's production has gone into current requirements and the low stocks of consumers constitute a strong factor. Soft steel bars are quoted 2.10c, Chicago.

Bar iron is unchanged at 2.00c, Chicago, and business filters in slowly. Most current sales of rail steel bars are on the basis of 2.00c, Chicago, but on attractive business recently it is said less has been quoted. Seasonal business in rail steel is holding up unusually long.

Boston, March 30.—Second quarter contracts are being entered in good volume. One dealer estimates that two-thirds of the normal second quarter consumption is now under contract. The price holds at 2.00c, Pittsburgh.

Pittsburgh, March 30.—Some merchant steel bar consumers are closing second quarter contracts at 2.00c but many are delaying. They are not apprehensive about obtaining tonnage when they need it nor concerning prices, believing they will not advance. Several small-lot sales are noted at 2.10c. Buyers are increasingly buying hand-to-mouth basis and some are ordering April tonnage only. Those who close for second quarter are taking tonnage equal to their first quarter consumption. Refined iron bar orders are fairly numerous although for small tonnages, and prices start at 3.50c.

Cleveland, March 30.—Second quarter contracting of bars is more active in this district. During the past week one seller closed on several thousand tons to a northern Ohio consumer. Automotive parts makers notice a slight recession in demand from a few automobile builders. General manufacturing demand is increasing. Several mills report first quarter sales above 1925, but expect second quarter totals to show a slight drop. Prices continue firm at 2.19c Cleveland or 2.00c Pittsburgh, with 2.10c Pittsburgh being asked by some interests on carloads and less-carloads. Deliveries are more urgently sought by buyers. One mill is quoting late May deliveries on certain sizes.

Hoops and Bands

Second Quarter Tonnage Exceeds that Bought for First

HOOP PRICES, PAGE 884

Pittsburgh, March 30.—Hoop and band ordering still is active and some second quarter contracts are being signed. The tonnage in many of these contracts exceed those taken for first quarter. Stamping and cooperage manufacturers are buying in attractive lots. The price is firm at 2.50c.

Cold Finished Steel

Specifications Hold Well and Operations Are Sustained

Pittsburgh, March 30.—Attractive specifications are coming in on cold finished bar contracts from users in various fields, all furnishing their respective quotas. This is indicated by the fact that operating schedules are well sustained at an 85 per cent average. The price 2.50c is being held firmly and applies on second quarter contracts.

Sanitary Ware Sales Drop

Washington, March 30.—Orders for sanitary ware in February dropped from January levels, according to returns to the department of commerce from 21 manufacturers. Bath orders fell from 114,062 to 86,768 pieces. Unfilled orders gained from 83,535 to 89,611. Unfilled orders for small ware fell from 200,619 to 198,326 pieces in the January-February period. A large drop was shown in sink orders, from 123,656 to 96,290.

Structural Shapes

Increasing Inquiries Add to Pending Total —Large Buildings Running Behind 1925— Awards Are Small But Numerous

AUGMENTED by an excess of new inquiries over awards the total pending tonnage is gaining steadily. At Pittsburgh between 35,000 and 50,000 tons is pending. Similar totals are in prospect at New York and Chicago. The leading Chicago interest booked about 6000 tons last week. Illinois Central railroad shops at Paducah, Ky., taking 4000 to 4500 tons feature awards. Inquiry is headed by 8000 tons for the Pennsylvania-Pittsburgh hotel, Pittsburgh.

Fabricators are operating with small stocks and customary second quarter protections or requirements are not being ordered from the mills. Prices are steady in most districts on plain material. Fabricated quotations are spotty, shading extending even to the larger companies.

STRUCTURAL SHAPE PRICES, PAGE 884

New York, March 30.—Structural demand is featured by few large tonnages. Although sizable business is pending, orders are light for this season. A feature is inquiries for two public schools, the first to appear in several weeks. Plain shape prices remain around 1.90c, Pittsburgh, on the general run of large work.

Boston, March 30.—While awards of the week have been small, new work is more promising. Architects are exceptionally busy and fabricators' estimating departments are swamped. Prices are unchanged at 1.90c Pittsburgh, on plain material.

Philadelphia, March 30.—Structural shape demand is smaller. Most important eastern mills are operating full but others still have early schedules open. Prices are easier ranging from 1.80c to 1.90c Pittsburgh or their equivalents. The 2.00c price apparently is a negligible factor here.

Chicago, March 30.—Building projects in Chicago territory are running slightly under the comparable period of 1925 but the demands of fabricators upon the mills are equally as great as a year ago. Fabricators are operating on a narrow margin of stock and the mills speedily feel placements. The outstanding award is that of 4000 to 4500 tons by the Illinois Central railroad for new shops at Paducah, Ky., to the American Bridge Co. The leading interest booked about 6000 tons of beams last week. As has been the case with other finished material, specifications for beams, which are quoted at 2.10c, Chicago, have been running slightly ahead of shipments.

The rate on structural material from Gary and Indiana Harbor, Ind., to Indianapolis, has been reduced from 25 to 17½ cents, this being an intrastate rate change.

Pittsburgh, March 30. —It is estimated that between 35,000 and 50,000 tons of structural shape work is pending in the greater Pittsburgh territory, the largest new one involving 8000 tons for the Pennsylvania-Pittsburgh hotel. Awards this past week all have been small, involving 100 tons or less. The mill price is unchanged at 1.90c to 2.00c.

Cleveland, March 30.—Small lots still rule the local structural market. Large tonnages are lacking in awards, and few new inquiries are heavy. Fabricators and mill interests here report continued dullness, largely due to labor and weather conditions. Plain material is firm at 1.90c to 2.00c Pittsburgh, with the bulk of sales at the former figure.

Awards Compared

	Tons
Awards this week	13,833
Awards last week	23,603
Awards two weeks ago	22,615
Awards this week in 1925	14,556
Average weekly awards, March	36,528
Average weekly awards, 1926	27,743
Total awards to date, 1925	458,756
Total awards to date, 1926	346,747

CONTRACTS PLACED

4000 to 4500 tons, Illinois Central railroad shops at Paducah, Ky., to American Bridge Co.

1600 tons, building for Buckeye Building & Loan association, Columbus, O., to Jones & Laughlin Steel Corp.

1100 tons, Midwest Athletic club, Chicago, to Midland Structural Steel Co.

1025 tons, Eagle Pass and Piedras Negras bridge, Dallas, Tex., to Missouri Valley Bridge & Iron Co.

1000 tons, sponge iron plant at Yokohama, Japan, to Worden-Allen Co.; Thornhill & Anderson, engineers.

750 tons, bridges for Missouri Pacific railroad, to Virginia Bridge & Iron Co. and Mt. Vernon Bridge Co.

700 tons, 18-story Allen building, Dallas, Tex., to Austin Bros.

600 tons, airplane plant to replace that of Stout Metal Airplane division, Ford Motor Co., Dearborn, Mich., to Whitehead & Kales Co.

400 tons, bridge for New York, Chicago & St. Louis railroad, at Erie, Pa., to American Bridge Co.

400 tons, shapes and plates, elevated 1,000,000-gallon capacity water tank for San Antonio, Tex., to Pittsburgh-Des Moines Steel Co.

375 tons addition to Pacific Telephone & Telegraph Co. building, Seattle, to Hofius Steel & Equipment Co.

300 tons, repairs to estuary bridge, Oakland, Calif., by Alameda county, Calif., to Moore Dry Dock Co.

300 tons, high school, San Leandro, Calif., to Pacific Coast Engineering Co.

300 tons, library for Wesleyan university, Middletown, Conn., to the Lehigh Structural Steel Co.

300 tons, addition to Oswald Jaeger wholesale bakery, Milwaukee, to Milwaukee Structural steel Co.

200 tons, Mack Motor Co. building, Bridgeport, Conn., to Porcupine Co.

200 tons, garage for Baer Bros., McKeesport, Pa., to the McClintic-Marshall Co.

170 tons, deck girder spans for Chicago, Milwaukee & St. Paul railroad, to Wisconsin Bridge & Iron Co.

170 tons, through riveted drawn span at Siletz Bay, Oreg., to Moore Dry Dock Co.

150 tons, Hopkins store building, Fifth avenue, Pittsburgh, to the John Eichleay Jr. Co.

143 tons, 85 tons for Boeing Airplane Co. building, Seattle, and 58 tons for plant of Northwest Rolling Mills, that city, to Austin Co.

100 tons, through riveted span over Little Pilchuck river, Snohomish county, Wash., to Hofius Steel & Equipment Co.

100 tons, Methodist Episcopal church, Brookline, Pittsburgh, to the Guibert Steel Co.

100 tons, Morningside school house, Pittsburgh, to the Guibert Steel Co.

100 tons, garage for H. B. Agsten & Sons Co., Charleston, W. Va., to James J. Weiler & Sons Co.

CONTRACTS PENDING

8000 tons, Pennsylvania-Pittsburgh hotel; bids about to be asked.

2500 tons, buildings for Colorado Fuel & Iron Co., Pueblo, Colo.; pending.

1500 tons, theater and office building for Loew's Inc., at Sixth and Penn avenues, Pittsburgh; bids about to be asked.

1500 tons, theater and office building at Seventh and Penn avenues, Pittsburgh, for the Rowland & Clark Enterprises; bids about to be asked.

1500 tons, General Forbes hotel, Pittsburgh; general contract awarded the Longacre Construction Co., New York.

1500 tons, building for the Pittsburgh Insurance Exchange, Inc., Pittsburgh; Boyle & Robertson Co., Philadelphia, general contractor; bids on steel being tabulated.

1000 tons, stadium for Northwestern university, Chicago; James Gamble Rogers, New York, architect.

1000 tons, dance hall in Chicago; plans by G. H. Gottschalk Co., 111 West Washington street, Chicago.

1000 tons, school No. 118, Hollis, L. I., general contractors' bids closed by New York board of education, April 7.

800 tons, three bridges, for Baltimore & Ohio railroad; pending.

600 tons, building for Wood Bros. Thresher Co., Des Moines, Iowa; pending.

600 tons, loft, at East Fifty-sixth street, New York; bids asked.

500 tons, school No. 44, Staten Island, New York; general contractors bids close April 7.

400 tons, addition to Firestone Tire & Rubber Co. plant, Hudson, Mass.

400 tons, bridge for the Seaboard Air Line in Georgia; bids asked.

350 tons, office building addition for American Trust Co., Boston; bids being taken.

300 tons, building No. 9, Sesqui-centennial exposition, Philadelphia; bids asked.

300 tons, shop, Westfield, Mass.; pending.

300 tons, branch building for New York Title & Mortgage Co., Jamaica, Long Island, N. Y.; pending.

273 tons, bridge over Rio Hondo river near Los Angeles; Gutleben Bros., low bidders on general contract.

200 tons, new building for Independent Packing Co., St. Louis; pending.
200 tons, theater, Floral Park, Long Island, N. Y.; pending.
200 tons, garage at New Rochelle, N. Y.; pending.
200 tons, mill building for rubber company, Framingham, Mass.; bids being taken.
200 tons, Foster Machine Co. plant addition, Westfield, Mass.; bids being taken.
200 tons, two bridges for the Southern railway; pending.
150 tons, building for the First National bank, Huntingdon, Pa.; bids being compiled.
150 tons, Wiggin Co. terminal, Charlestown, Mass; bids being taken.
130 tons, bridge over Oswego creek, New York, for Lehigh Valley railroad; pending.
100 tons, Berryman department store, Charleroi, Pa.; Charleroi Iron Works understood low bidder.
100 tons, Wilkins school building, Swissvale, Pa.; bids close April 12.
100 tons, building for the Iron & Glass Dollar Savings bank, Pittsburgh; bids being compiled.
Unstated tonnage, replacement buildings for the Allegheny General hospital, Northside, Pittsburgh; York & Sawyer Co., New York, architects; bids about to be asked.

Metal Jobbers To Meet

Pittsburgh, March 30.—Sheet metal jobbers in the Pittsburgh district, including the Demmler Bros. Co., McClure-Johnson Co.. Steel City Sheet & Tin Plate Co., and the Follansbee Bros. Co., will entertain sheet metal contractors at the annual "Sheet Metal Jobbers Night" to be held in the chamber of commerce auditorium April 9. Capt. Irving O'Hay will speak.

Timing Gears Corp., Chicago, has increased capital from $10,000 to $50,000.

Concrete Bars

Buying Shows More Promise as Heavier Tonnages Open Up

PENDING work involving concrete bars is the heaviest this year. Although still mostly in small lots, around 25,000 tons is actively being figured. Continued cold weather in the northern states has delayed the usual spring construction and road building activity. Prices show little change, being steady at 2.00c, Pittsburgh equivalents.

REINFORCING BAR PRICES, PAGE 884

Chicago, March 30.—Pending work in reinforced concrete has expanded somewhat and awards still feel the impetus of the renewed activity of ten days ago. Compared with a year ago both pending work and awards are off. Reinforcing bar warehouses are more concerned with supplies since the mills are more heavily burdened with bar orders. Not including road work, more than 5000 tons of bars is pending. Billet reinforcing bars are quoted at 2.60c, Chicago warehouse, and rail steel at 2.00c.

Boston, March 30.—Recent concrete bar awards mostly have been small, but work now being figured is more promising than any time this year. One dealer reports over 6000 tons being estimated. Prices hold firm at 3.00c, Boston warehouse on new billet bars.

New York, March 30.—Concrete bar business is broadening. Heavy lettings are expected during the coming month. The mill price on new billet bars continues 2.00c, Pittsburgh.

Pittsburgh, March 30.—Numerous building projects are being considered in Pittsburgh and vicinity involving in excess of 5000 tons of reinforcing concrete bars. This includes the Pennsylvania-Pittsburgh hotel, the Pittsburgh Insurance Exchange building, two combined theater and office buildings, schools, railroad bridges, road work, etc. Mill prices are unchanged at 2.00c to 2.10c on billet bars.

Buffalo, March 30.—Although mill operation is light for this season indications are that a considerable amount of reinforcing bar tonnage will be booked in this market this spring. Major inquiry here is for more than 3000 tons, while Rochester building projects involve more than 1000 tons. Pennsylvania and New York road projects pending involve several hundred tons in all. Prices are 2.265c for mill shipments and 2.75c for local delivery.

Cleveland, March 30.—Concrete reinforcing bar tonnage is restricted to inquiries. Awards of the week were negligible. The Akron, O., sewage disposal plant requiring about 2500 tons is about to be placed. New billet bars are steady at a 2.00c Pittsburgh level, or 2.19c to 2.20c Cleveland. Rail steel is untested at 1.80c to 1.90c, mill. Stock prices vary, 2.40c Youngstown to 3.10c Cleveland applying.

Awards Compared

	Tons
Awards this week	5,000
Awards last week	2,650
Awards two weeks ago	3,875
Awards this week in 1925	2,515
Average weekly awards, March	4,548
Average weekly awards, 1926	4,333
Total awards to date, 1925	82,752
Total awards to date, 1926	56,993

CONTRACTS PLACED

500 tons, William Penn Garage building, Pittsburgh, to Kalman Steel Co.
500 tons, Barclay and Vesey building, New York, to Jones & Laughlin Steel Corp.
455 tons, various requirements for federal engineer at Milwaukee to Calumet Steel Co.; 60 tons, by same buyer, to Inland Steel Co.
450 tons, Fifth avenue apartment, Pittsburgh, to the Truscon Steel Co.
350 tons, Hunter-Dulin building, San Francisco, to unnamed San Francisco jobber.
300 tons, building for the Press Publishing Co., Pittsburgh, through the W. T. Grange Construction Co., general contractor, to the Carlen Engineering Co.
300 tons, city of Minneapolis, to C. A. P. Turner Co.
275 tons, dam at Pawtucket, R. I., to Kalman Steel Co.
200 tons, school, Sixth and Master streets, Philadelphia, to American Steel Engineering Co.
200 tons, Firestone Tire & Rubber Co. building, Hudson, Mass., to Franklin Steel Co.
150 tons, by Great Northern railroad at St. Paul, to Wisconsin Steel Co.
115 tons, building for Independent Order of Vikings, Chicago, to Calumet Steel Co.
150 tons, Hall of Records, Newark, N. J., to Igoe Bros.
100 tons, theater, Eighty-sixth street, New York, to Igoe Bros.
100 tons, Arrow Silk hosiery mill, Irvington, N. J.; to Igoe Bros.
100 tons, Hudson county jail, Jersey City, N. J., to Joseph T. Ryerson & Son, Inc.
100 tons, Apex hosiery mill, Spring City, Pa., to McClintic-Marshall Co.
100 tons, Duff-Nash building, Philadelphia, to Davis Bros.
100 tons, 18-story Allen building, Dallas, Tex., to Austin Bros.
100 tons, apartment house, Grand and Russel avenues, St. Louis, to Laclede Steel Co.
100 tons, Ridgeview apartment, Evanston, Ill., to Truscon Steel Co.
100 tons, building for Packard Motor Car Co. at Milwaukee, to Calumet Steel Co.
100 tons, west retaining wall for Illinois Central railroad at Randolph street, Chicago, to Truscon Steel Co.
Tonnage unstated, foundations for Gimbel Bros. store, Philadelphia, to Davis Bros.

CONTRACTS PENDING

4500 tons, sea wall, Havana, Cuba; general contract to Mendoza Construction Co., Havana.
2500 tons, sewage disposal plant, Akron, O.; contract about to be let.
2000 tons, Bush Terminal Co. building, Brooklyn, N. Y.; pending.
1000 tons, sewer for Detroit; pending.
600 tons, Savoy Realty Co. building, Boston; bids being taken.
450 tons, stadium for University of Chicago, Chicago; general contract to Edward L. Scheidenhelm Co., 111 West Monroe street.
300 tons, reclamation service, department of interior, at Denver; pending.
300 tons, Pittsburgh Insurance Exchange, Pittsburgh; bids being taken by the Boyle-Robertson Co., general contractor, Philadelphia.
300 tons, superstructure, Parker house, Boston; bids being taken.
250 tons, Pittsburgh Plate Glass Co. building, Boston; bids being taken.
200 tons, Stone & Webster building, Boston; preliminary figures called for.
100 tons, school, Ashtabula, O.; bids in March 30.
Tonnage unstated, Pennsylvania-Pittsburgh hotel, Pittsburgh; bids about to be asked.
Tonnage unstated, building for Loew's Inc., Sixth and Penn avenue, Pittsburgh; bids about to be asked.
Tonnage unstated, building for the Rowland & Clark Enterprises, Seventh and Penn avenues, Pittsburgh; bids about to be asked.
Tonnage unstated, addition to Garfield Park hospital, Chicago; plans shortly by Schmidt, Garden & Martin, 104 South Michigan avenue.

"High Chromium Steel" is the subject of the lecture to be delivered by C. E. McQuigg, Carbide & Carbon Research laboratory, as part of the 1925 series of lectures being arranged by the Association of Chemical Equipment Manufacturers under joint sponsorship with Carnegie Institute of Technology, Pittsburgh, Columbia university, New York, and Ohio State university, Columbus, O.

Rails, Cars

Carbuilders Find Less Inquiry —Northern Pacific Buys 1000 Cars—Track Accessories Active

AWARD of 1000 auto box cars by the Northern Pacific is the only large activity in the equipment market this week. Inquiries are less numerous, and are at the lowest point this year. Locomotives are featured by inquiry of New York Central for 100. Western roads are pushing mills for rail deliveries and are booking heavy fastenings tonnages.

RAILROAD TRACK MATERIAL PRICES, PAGE 884

New York, March 30.—Although sizable lists are pending, car buying in this district over the past two weeks has been as light as at any time this year. New inquiry also has been restricted. The locomotive market maintains a fairly active aspect. The New York Central contemplates the early purchase of 100 locomotives.

The 2000 box cars on which the Pennsylvania opened bids March 25 will require about 16,500 tons of plates, shapes and bars; 5700 tons of sheets and about 3500 tons of axles. The 100 cabooses and 234 miscellaneous passenger cars for which the road is in the market also will require considerable steel. Pennsylvania is expected to take action about April 8, when all bids will be in.

About 6000 to 7000 tons of steel will be needed for the 1000 box cars for which the Central Railroad of New Jersey is in the market. Additional steel will be required for 100 gondolas for this road.

The Karafuta railway, Japan, is inquiring for 25 miles of 45-pound rails.

Pittsburgh, March 30.—Large track accessory orders are few and small ones are more numerous. Specifications against contracts are for needs in sight. Prices are unchanged on the quoted bases. Light rail orders have been fairly numerous of late due to buying on the part of operators of anthracite mines. The market is quoted at $35 to $36, and some manufacturers claim to be maintaining the $36 price as a minimum, on light rails.

Boston, March 30.—Several frog and switch projects are in the making, but other than this railroad material is quiet in the New England territory.

Chicago, March 30.—Placement of 1000 automobile box cars by the Northern Pacific leaves 500 hoppers for the Burlington the only active western car inquiry. With the Western Maryland inquiry for 1000 box cars postponed, eastern inquiry has been restricted to 2000 automobile box cars for the Pennsylvania and 1000 box and 100 gondolas for the Central Railroad of New Jersey. Not in recent months has inquiry been at so low a level but car builders have become accustomed to operating on a narrow margin and believe the railroads will feed out additional inquiry shortly.

Western railroads are unceasing in their pressure for rail and fastening deliveries. Demand for rolled steel wheels has never been heavier. Bookings of fastenings include 20,000 kegs of spikes and bolts, 7000 tons of tie plates and 1500 tons of angle bars.

ORDERS PLACED

Northern Pacific, 1000 automobile box cars divided evenly between Standard Steel Car Co. and Pressed Steel Car Co.
Rock Island, 5 baggage cars, to American Car & Foundry Co.
Pennsylvania, 24 diners, to own shops.
Brazilian Portland Cement Co., Brazil, 10 dump cars, to the Magor Car Corp.
Chicago, Burlington & Quincy, 100 ballast cars, to the Rodger Ballast Car Co.
Chicago & North Western, repairs to 10 to 25 baggage cars, to the American Car & Foundry Co.
Aluminum Co. of America, 30 air dump cars, to Koppel Industrial Car Co.
Anglo-Chilean Consolidated Nitrate Co., 62 nitrate cars, to Koppel Industrial Car Co.
Northern Ohio Traction & Light Co., 25, and 45 other electric freight cars for Western Ohio; Michigan Railroad Co.; Pennsylvania & Ohio Electric, and Toledo Bowling Green & Southern, to Kuhlman Car Co.
Spencer, Kellogg & Co., Buffalo, 5 tank cars, to American Car & Foundry Co.

LOCOMOTIVE ORDERS PLACED

Reading Co., five Pacific type, to the Baldwin Locomotive Works, and one oil electric to the American Locomotive Co.
Brazilian Portland Cement Co., Brazil, one to the American Locomotive Co.
Aluminum Co. of Canada, one, to the American Locomotive Co.
Mogyana railway, Brazil, 10 locomotives, to the American Locomotive Co.
United States Gypsum Co., one switch engine, to the Baldwin Locomotive Works.
Lacombe & Northwestern, one locomotive, to the Canadian Locomotive Co.

ORDERS PENDING

Baltimore & Ohio, 16 air dump cars; pending.
The Anglo Chilean Consolidated Nitrate Corp., 120 gondola cars; bids asked.
South African railways, 20 gondolas; bids asked.
Baltimore & Ohio, 100 caboose underframes; pending.
Reading railroad, 50 passenger cars; pending.

LOCOMOTIVE ORDERS PENDING

New York Central railroad, 100 locomotives; contemplated.
Egyptian State railways, 40 side tank locomotives; bids close in Cairo, Egypt, April 7.
Argentine State railways, 20 locomotives; bids open May 3.

General Machine & Iron Works, Detroit, has increased capital from $200,000 to $250,000.

Wire

Western Makers Find Demand Increasing Faster Than Production—Others Curtail Operations

WHILE eastern producers of wire find production must be held back to meet demand of consumers those in the West find buying has picked up markedly and with low stocks in hands of jobbers and their own warehouses mills feel the demand direct. Prices are being held firmly and the situation is steady. Some foreign competition is met on the eastern coast.

WIRE PRICES, PAGE 884

Chicago, March 30.—Long-deferred jobber demand for wire and wire products for spring trade has appeared. Mill stocks being relatively as low as those of jobbers, the mills are not quite able to meet the sudden rush. Nails, barbed wire and fencing are in heaviest demand and in some of these lines added capacity has been put on. Manufacturing demand for wire products has shown practically no change in the past week. Specifications from the automobile industry are spotty but holding up well. The average of western wire mill operations is probably 65 per cent. Prices are unchanged at 2.55c, Chicago, or western mill, for plain wire while wire nails are quoted at 2.70c.

Boston, March 30.—Despite improved inquiry wire sales remain quiet, and nails are exceptionally dull. Foreign competition has been felt in several eastern Massachusetts projects. Plain wire is held at 2.87c Boston and 2.65c Worcester.

Pittsburgh, March 30.—Wire products manufacturers seem reconciled to the fact that with the country over-equipped they must be satisfied with curtailed production schedules. They believe that to operate at 60 to 70 per cent, today's average, and maintain full market prices is better than to operate at 85 per cent or more and make price concessions below production costs. Some manufacturing wire contracts for second quarter are being closed and some 60-day contracts with jobbers are being renewed. Prices are unchanged at 2.50c on plain wire and 2.65c on wire nails.

Nonferrous Metals

Prices Slip Off as Buying Remains Light—Shipments on Old Orders Still Heavy and Many Market Factors Are Favorable

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Straits Tin, N. Y.	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Mar. 24	14.02½	14.25	13.45	65.00	8.35	8.10	7.30	27.00	19.87½	35.00
Mar. 25	14.00	14.15	13.37½	64.25	8.35	8.05	7.10	27.00	19.87½	35.00
Mar. 26	13.97½	14.12½	13.30	64.12½	8.35	8.05	7.12½	27.00	19.62½	35.00
Mar. 29	14.00	14.12½	13.35	63.87½	8.35	8.05	7.15	27.00	18.75	35.00
Mar. 30	14.00	14.12½	13.35	63.00	8.35	8.05	7.10	27.00	18.50	35.00

NEW YORK, March 30.—Nonferrous metals in their slump of the past few weeks, with an acute situation in the last few days, are running closely parallel with the metal markets of a year ago. However, most prices have not slipped off quite so much as in the first three months of last year even though in the early months of this year some prices did not go as high as early in 1925.

Buying remains light, and such as is being done is almost entirely for early shipment. Shipments on old orders continue near top level and the trouble is mostly that producers lack backlog. The stock market and foreign affairs are discouraging to the market but many domestic factors are favorable.

Rolled Products—Brass and copper mill products except copper wire were cut ¼-cent a few days ago. Mill products in other metals have been unchanged the past week after earlier cuts. New buying has not been very active but specifications are active and some shipments still are deferred by the mills.

Copper—The red metal has sold in a few instances below 14.00c delivered (14.12½c Midwest) but this price for the most part has been found to be the bottom for any real buying. Odd lots, especially for the f.a.s. export trade or on refinery basis, have gone ¼-cent lower. Producers appear to be well booked for April on domestic business and a good amount of buying appears to be hanging over the market, pending definite indications of firmness.

Zinc—The price of prime western fell to within ⅛-cent of 7.00c East St. Louis a few days ago and then became a little firmer with sales lately at 7.15c. Practically all business now is for prompt shipment but buying is light, both by galvanizers and brass mills. No price distinction is made between prompt and May.

Tin—The price of this metal has fallen about 2 cents but supplies still are in a tight position. Buying on most recent days has been light and the stock market has thrown a wet blanket on the speculative side of the market.

Lead—The heavy metal has been a little easy in the past few days but producers are well booked for April and are unwilling to sell at lower prices though buyers are also well covered and do not care for much more at present figures. The open market still is a little above the two principal sellers.

Aluminum—Shipments are going along at a good rate and nothing much else is happening in this usually quiet market.

Old Metals—Dealers in all centers have marked down most of their buying prices in accord with new metals.

Many Bethlehem Workers Subscribe for Stock

New York, March 29.—E. G. Grace, president, Bethlehem Steel Corp. has announced that under this year's savings and stock ownership plan, 38,473 employes have applied for a total of 76,536 shares of 7 per cent preferred stock of the corporation at $101 per share.

This number of shares is equivalent to over 15.7 per cent of the total amount of 7 per cent preferred stock of the corporation outstanding on Dec. 31, 1925, or over 21.8 per cent of the additional $35,000,000, par value, of the preferred stock, the sale of which recently was announced.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	18.87½
Copper, hot rolled	22.50
Zinc, ga. 9 to 23 (100-pound base)	11.50 to 11.75
Lead full sheets (cut ¼c more)	12.25 to 12.75
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	23.50
Copper	24.25
RODS	
High brass (round ⅝ to 2½-inch)	16.62½
Naval brass	19.37½
WIRE	
Copper	16.25
High brass	19.37½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.75
Chicago	9.25
Cleveland	9.25 to 9.50
HEAVY YELLOW BRASS	
New York	7.25
Chicago	8.25
Cleveland	7.00 to 7.50
ZINC	
New York	4.00
Cleveland	4.75 to 5.00
HEAVY COPPER AND WIRE	
New York	11.50
Chicago	11.50
Cleveland	10.75 to 11.00
RED BRASS BORINGS	
New York	8.25
YELLOW BRASS TUBING	
Cleveland	7.00 to 7.50
LIGHT COPPER	
New York	9.25
Chicago	9.50
Cleveland	9.75 to 10.00
LIGHT BRASS	
Chicago	7.50
Cleveland	6.25 to 6.50
ALUMINUM	
Clippings	20.00 to 22.00
Borings, Cleveland	13.50 to 15.00
Cast	18.00 to 21.00

Secondary Metals

Remelt aluminum No. 12	24.00 to 24.50
Brass ingot	11.75

Coke By-Products

Sulphate of Ammonia Slightly Lower —Demand for Distillates Brisk

New York, March 30.—Steadiness again features the coal tar by-products market. Only in sulphate of ammonia has there been any revision and this has been small. Sulphate now is slightly lower at $2.60 to $2.65 port, for export, and $2.60 to $2.65 delivered, for domestic consumption. Owing to the close of the fertilizer season, domestic commitments are light and dullness also prevails in export demand.

Brisk trading still characterizes light oil distillates, which are firm at 24 cents works in tanks, and 29 cents in drums for 90 per cent benzol and 23 cents works, in tanks and 28 cents in drums for pure benzol; 35 cents works, in tanks and 40 cents in drums for solvent naphtha and toluol, and 36 cents in tanks and 41 cents in drums for commercial xylol.

Naphthalene in unchanged at 7 cents works for flakes and 8 cents for balls, with buying comprised largely of requirements for the drug trade.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.23	
90 per cent benzol	0.24	
Toluol	0.35	
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.07	
Naphthalene balls	0.08	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.62½	

Strike Threat on Coast

Interruption of Building Expected and Buying Is Light as Result—Trading Confined to Small Lots

SAN FRANCISCO, March 27.—(*By Air Mail*)—Activity in iron and steel products the past week was confined to small lots with one or two exceptions. Sales and inquiries have fallen off decidedly, compared with the first three weeks of March, and in one or two lines, lower prices have appeared.

The possibility of a general strike in the San Francisco bay district has had anything but a stabilizing influence. Union carpenters are threatening to walk out in protest against the American plan. Wages and working hours are not involved. It is thought other union members will also strike in sympathy. There is no doubt this situation is responsible in large measure for the present quiet state of the markets.

Coast Pig Iron Prices

Columbia basic	$27.00 to 28.00
Columbia, No. 2 Fdry., San Francisco and Los Angeles	27.00 to 28.00
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del. S. F.	25.50
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del. L. A.	25.75
*Dutch	24.00
*Indian iron	24.25
*Belgian	24.00
German	24.00
*English (2.75 to 3.75 sil.)	25.00 to 26.00

*C.I.F. duty paid.

Pig Iron and Coke

The foundry trade in San Francisco has recently been harrassed by the shooting down of a number of nonunion molders on their way to work and almost daily reports are appearing of fresh assaults. Operations are quiet with the result that demand for pig iron and coke is light. One large importer has just distributed about 1000 tons of India iron among the foundries of Los Angeles, San Francisco and Seattle to apply against orders placed some time ago. Prices remain unchanged with the exception that Anzan No. 1 (Chinese) 3.75 silicon delivered Los Angeles is now quoted at $25.75.

Bars, Plates and Shapes

Small lots of 20 to 60 tons continue to comprise the run of concrete bar business booked. An unnamed San Francisco jobber booked 350 tons for the Hunter-Dulin building, the only award so far this month that has exceeded 100 tons. Several large jobs are pending and include 600 tons for hospital buildings at Mare Island, Calif., the general contract for which was placed with Barrett & Hilp. Prices continue firm.

Plate awards this week included on project of 100 tons for a pipe line at Mt. Shasta, Calif., placed with the Montague Pipe & Steel Co. Bids on The Dalles, Oreg., pipe line reported last week as having gone to the Beall Tank & Pipe Co., were rejected and new bids will be opened March 29. About 500 tons are involved. Bids on the San Diego pipe line, 12,800 tons, were postponed from March 22 to April 5. Other inquiries include 320 tons for a pipe line at Spokane. While the larger producers are holding to 2.30c c.i.f. one or two small mills have quoted 2.25c but as far as can be ascertained no purchases have been made at this price.

While close to 7000 tons of structural shapes are up for figures or pending only one award over 100 tons was reported this week. The Pacific Coast Engineering Co. took 300 tons for a high school at San Leandro, Calif. It is reported that 2.30c c.i.f. has been quoted this week on plain material but most producers continue to hold firm to 2.35c.

Other Finished Material

Cast iron pipe awards included only one project in which over 100 tons were involved. The McWane Cast Iron Pipe Co. was awarded 242 tons for San Diego, Calif. No new inquiries developed during the week. B Nicoll & Co. were low bidders on 3500 tons for Santa Monica, Calif., but no award has been made as the city is seriously considering the use of concrete pipe. Pending business is about 30,000 tons. Palo Alto, Calif., will hold a bond election April 29 covering 1100 tons of pipe. Prices remain unchanged.

Pig Iron Sales Larger

(*Concluded from Page* 885)

Ohio districts is quotable at $22, base.

The McKinney Steel Co. has blown in another stack at Cleveland, making all four active.

Cincinnati, March 30.—Approximately 10,000 tons of pig iron, involving virtually all grades, were booked by producers and sellers in this district in the past week. A leading seller reported sales of 5000 tons, mostly northern foundry iron for second quarter. The Louisville & Nashville railroad bought 800 tons of southern and 135 tons of southern charcoal iron. The business was divided between three local sellers. The National Cash Register Co., Dayton, O., closed for a car of 7 to 8 per cent silvery iron for prompt shipment. The price situation is unchanged, with northern iron quoted $20.51 to $21, Ironton, and southern iron $21.50 for Tennessee and $22 for Alabama, base Birmingham.

Chicago, March 30.—The melt of merchant iron has rarely been heavier in this district. Indicative of this, shipments by producers this quarter have set a new high quarterly record, and the second stack at Mayville went in yesterday. In an increasing number of cases melters are anticipating their April iron. The aggregate of second quarter buying has been good but quite a tonnage remains to be placed. Nothing approaching a buying movement has developed and a number of melters, both large and small, have yet to place their second quarter needs. One seller has experienced a fair gain in sales the past week. Foundries on automotive work, as a general rule, are the busiest although railroad supply houses have considerable work for cars placed this quarter. Neither melters nor producers have stocks worth mentioning. With both Mayville stacks now active 8 of the 10 merchant stacks in this district are in blast and it is said that the Thomas stack at Milwaukee, now down for repairs, will go in again the middle of April. The market on northern No. 2 foundry and malleable iron appears to be holding at $23, Chicago furnace. The special irons are inactive but unchanged in price.

St. Louis, March 30.—Inquiry for pig iron has increased, but it is under the seasonal average. Sales consist of small lots for immediate requirements. The volume of current melt and shipments are ahead of new business placed. The largest inquiry last week was from a heating apparatus manufacturer for 1000 to 3000 for second quarter delivery to plants in Illinois. A northern Illinois malleable user wants 500 tons for second quarter and an equipment builder is seeking 600 to 1000 tons for second quarter.

Virtually all business done is at lower levels than formally quoted by producers. Northern iron is quoted at $23, furnace, while sales are made at $22, several as low as $21.50. The $23 quotation for the Birmingham product is being continued, but only in exceptional cases and on small tonnages for particular and urgent requirements is that figure being realized. The leading local producer quotes $23.50 to $24, f.o.b. Granite City, but is meeting competition.

Birmingham, Ala., March 30.—Demand for foundry iron is steady, principally for small tonnages. Furnace interests maintain a price of $22 for No. 2 foundry. Stocks of foundry iron at furnace yards in this district are below 35,000 tons. The Tennessee Coal, Iron & Railroad Co. will blow in one blast furnace at Ensley this week, and put out one for repairs. The Sloss-Sheffield Steel & Iron Co. will continue operations with six blast furnaces indefinitely. The Central Iron & Coal Co. expects to light its blast furnace at Holt, Ala., about April 15.

A pipemaker in the Birmingham district has bought 12,000 tons of foreign pig iron.

A bulletin issued by the National Safety council states that in 10 years the United States Steel Corp. expended $9,763,063 for accident prevention work and the returns totaled $14,609,920.

British Pig Iron Prices Firmer

American Consumers Continue Good Customers—Ferromanganese Reacts on Decline in United States—Asiatic Petroleum Interests Place Order for 500,000 Boxes of Oil Plates

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, March 30.—(*By Cable*)—The British pig iron market is firmer this week, while American interests continue to make liberal purchases. Ferromanganese prices are reacting as a consequence of price reductions in the American market.

British steelworks are maintaining their improved rate of output. Orders for rolling stocks have been received from Egypt and South Africa. The market for tin plate is dull, except for an order for 500,000 boxes of oil plates for Asiatic petroleum interests. German competition in the British market still is notable, steel beams being offered at £1 ($4.86) under the British market, delivered.

A report from Paris states an order for 1500 tons of rails for delivery to Brazil has been placed with mills in the Saar. Export prices quoted by Belgian steelmakers are weaker. A report from Vienna contains the information that a blast furnace is to be erected in Turkey.

British Steel Production Gain Is Surprise

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., March 20.—(*European Staff Service*)—The iron and steel trades are peculiarly susceptible to the mischievous effects of the lockout threat in the engineering trade. The general impression is that a stoppage will be avoided; but this is a matter in which buyers adopt the "wait and see" policy, and it is significant that engineers who have been kept busy for months past tendering for various steel structures have had poor mails since the threat was issued. The report by the coal commission, so far from relieving the situation, has satisfied nobody, and as the critical period draws near the prospect of a satisfactory settlement seems to recede. The natural effect of these disturbing factors upon a sensitive industry struggling against adversity is to postpone business.

Sterling $4.86

Statistics of February production, in relation to steel are an agreeable surprise, and more satisfactory than anything for the past twelve months. The output was 703,800 tons against 640,400 tons in January and 606,800 tons in December. We have to go back to 1923 for a figure exceeding 700,000 tons. The output exceeds the prewar average of 1913 by nearly 70,000 tons, and is within 50,000 tons of the active year of 1920. The attainment of such a total with such poor shipbuilding demand appears to indicate that a real shipbuilding revival would put the steel trade in a moderately satisfactory position. Pig iron figures are less encouraging.

New buying is slow in all departments, but Welsh steelworks are busier than for some time, largely as the result of railway buying. Undoubtedly the improved steel figures are largely furnished by rail mills, which have had a moderate degree of activity. The railways are the best customers, continually placing orders

(*Concluded on Page* 913)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, March 29	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d			Francs		Francs	£ s d	
Foundry No. 3, Silicon 2.50-3.00	$17.01	3 10 0*	$14.45	425	$13.91	365	$17.01	3 10 0
Basic	16.52	3 8 0	14.79	435	12.95	340	15.07	3 2 0
Basic-bessemer	18.59	3 16 6†	14.45	425	13.34	350	17.01	3 10 0
Hematite, Phosphorus 0.02-0.05	20.41	4 4 0	15.48	455	.....	...	18.23	3 15 0
SEMIFINISHED STEEL								
Billets	$26.73	5 10 0	$20.91	615	$20.38	535	$24.30	5 0 0
Wire rods	43.74	9 0 0	27.20	800	26.67	700	27.95	5 15 0
FINISHED STEEL								
Standard rails	$35.24	7 5 0	$26.35	775	$25.53	670	$29.16	6 0 0
Merchant bars	1.4?c	6 17 6	1.12c	725	1.08c	630	1.17c	5 6 0
Structural shapes	1.33c	6 2 6	1.04c	675	1.01c	5 0	1.07c	4 17 0
Plates, ship, bridge and tank	1.52c	7 0 0	1.17c	760	1.14c	660	1.20c	5 9 0
Sheets, black, 24 gage	2.22c	10 5 0	2.10c	1,365	2.04c	1,180	2.64c	12 0 0
Sheets, galvanized, 24 gage, corrugated	3.47c	16 0 0	3.03c	2,000	4.04c	2,350	3.63c	16 10 0
Bands and strips	2.17c	10 0 0	1.37c	8?0	1.37c	795	1.54c	7 0 0
Plain wire, base	2.3?c	11 0 0	1.7?c	1,160	1.46c	850	1.54c	7 0 0
Galvanized wire, base	3.04c	14 0 0	2.43c	1,575	1.8?c	1,100	1.98c	9 0 0
Wire nails, base	3.15c	14 10 0	2.00c	1,300	1.55c	900	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.68	0 19 3	.....	...	.....	...	$ 6.56	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$17.01	3 10 0	$13.77	405(2)	$12.76	335	$19.55	85
Basic pig iron	16.28	3 7 0	13.77	405(1)	12.57	330	20.24	88
Furnace coke	3.71	0 15 3	5.24c	154	4.19	110	5.06	22
Billets	26.73	5 10 0	18.70	550	17.91	470	27.37	119
Standard rails	1.63c	7 10 0	1.08c	700	1.01c	590	1.48c	142
Merchant bars	1.57c	7 5 0	1.08c	700	0.99c	575	1.41c	135
Shapes	1.44c	6 12 6	0.98c	635	0.97c	565	1.37c	131
Plates, ship, bridge and tank	1.55c	7 2 6	1.20c	780	1.09c	635	1.55c	149
Sheets, black, 24 gage	2.33c	10 15 0	2.08c	1,350	1.80c	1,045	2.24c	215
Sheets, galvanized 24 gage, corrugated	3.50c	16 2 6	3.12c	2,025	3.78c	2,200	3.96c	380
Plain wire	2.39c	11 0 0	1.77c	1,150	1.38c	800	1.83c	175
Bands and Strips	2.28c	10 10 0	1.34c	870	1.29c	750	1.61c	154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 3d ($3.71) f. o. b. Ferromanganese £15 5s 0d ($74.12) f. o. b. German ferromanganese £14 0s 0d ($68.04) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

First Quarter Ends Well—Second Quarter Prospects Doubtful—New England District Is Most Active in Fairly Firm Market

CONCLUDING the first quarter with perhaps the best month of 1926, machine tool makers are not so optimistic as to prospects for the next period. This doubt has been reflected in no great drop, but more in a lack of actual order taking, especially in the Ohio territory.

In the East, while the New York market is unusually inactive at present, from Boston come surprising reports of sales. There as well as in Chicago railroad lists again are prominent. A Cleveland screw machine maker has just sold some 12 automatics to a western brassworker. The spring outlook rather than price accounts for the present uncertainty of the situation in the tool market.

New York, March 30.—Machine tool buying in the Metropolitan district is less active than inquiry. There are few large lists, but many involving one and two machines. In several instances it definitely is known that equipment funds have been appropriated. Current inquiry includes approximately ten standard machine tools for the International Paper Co., New York, for installation in Louisiana. Within the week General Electric Co., Schenectady, N. Y., has issued inquiries for a similar number and in addition has purchased several machines against prior specifications. An active buyer is International Motors Corp., Allentown, Pa., with several machine tools still pending. Brooklyn-Manhattan Transit Co., New York, has placed steel for an additional unit at its Coney Island repair shops, for which equipment will be required. Included in miscellaneous orders are two spindle drum type milling machines for Ford Motor Co., Detroit; a carwheel borer for the Cincinnati & Northern; a 53-inch vertical boring and turning mill and a car wheel lathe for Chicago, Rock Island & Pacific; a 10-foot boring and turning mill and a 62-inch boring and turning mill for Whiting Corp., Harvey, Ill.; a 5-foot plate straightening roll and 12-foot plate bending roll for Pullman Car & Mfg. Co.; Pullman, Ill., and a 36-inch by 38-foot lathe for Hudson Coal Co., Scranton, Pa., all going to Niles-Bement-Pond Co.

Boston, March 30.—Recent sales here have amounted almost to a flurry in number and distribution, and although large tools are not prominent, the value of the week's sales unquestionably is the best this year. General Electric Co. bought several tools more against its lists for Lynn and Pittsfield, Mass., plants. Several tool builders in the district have been buyers. Boston & Albany has prepared a long list and several other New England railroads are tentatively in the market. Tool dealers in Connecticut report the month ahead of any March in several years. At Boston, March sales of one of the leading dealers were ahead of any month since 1920.

Pittsburgh, March 30.—Machine tool dealers are divided in their market opinions, one or two reporting that March is turning out the best month this year with a steady stream of small orders. Others state that while numerous inquiries are pending, buyers continue to postpone closing. Westinghouse Electric & Mfg. Co. has issued a double list, about 12 items being prompt equipment for East Pittsburgh, Pa., the other part being its second quarter list of 30 or more machines, including lathes, milling machines, grinders, radial drills, presses, etc. This company already has purchased some of the items on its former list, including two milling machines. American Sheet & Tin Plate Co. shortly will buy against its list for New Castle, Pa.

CRANE ORDERS PLACED

Two pile drivers and two standard locomotive cranes for Southern railway, to Industrial Works.

Two 25-ton locomotive cranes for Carnegie Steel Co., Pittsburgh, to Browning Crane Co.

Two 3-ton electric cranes for West Virginia Pulp & Paper Co., New York, to Cleveland Crane & Engineering Co.

Conveying equipment for Long Island City, L. I., plant of Socony Burner Corp.; 2000-foot monorail track to New Jersey Foundry & Machine Co., 2-ton motor driven trolley hoist to American Engineering Co. and 1-ton hoist with trolley to Shepard Electric Crane & Hoist Co.

Single awards include: 50-ton electric crane for power plant at Whittany, N. J., through General Engineering & Management Corp., New York, to Whiting Corp.; 25-ton locomotive crane for John W. Cooper Co., Buffalo, general contractor, to American Hoist & Derrick Co.; 25-ton trolley for American Bridge Co., Elmira, N. Y., to Cleveland Crane & Engineering Co.; 25-ton locomotive crane for Delaware, Lackawanna & Western railroad, to Industrial Works; 15-ton electric crane for Pittsfield, Mass., plant of General Electric Co., to Niles Crane Corp.; 12-ton used locomotive 15-ton overhead crane for Canadian Salt Co., Ltd., Sandwich, Ont., through McClellan & Junkersfeld, New York, to Northern Crane Works, Walkerville, Ont.; 12-ton used locomotive crane for Clark Bros., Ilion, N. Y., to Philip T. King; 10-ton overhead crane for Mathieson Alkali Corp., Saltville, Va., to Northern Engineering Works; 5-ton handpower crane for Public Service Corp., Newark, N. J., for installation at Harrison, N. J., gas plant, to Alfred Box & Co.

CRANE ORDERS PENDING

Four 25-ton locomotive cranes for Baltimore & Ohio railroad; bids asked.

Three special oil-burning locomotive cranes for Pennsylvania railroad; bids asked.

Single inquiries include: 60-ton electric overhead crane for powerhouse at Fort Inglis, near Miami, Fla., for General Engineering & Management Corp., New York, bids asked; 7½ to 10-ton electric overhead crane for Covel Mfg. Co., Benton Harbor, Mich., pending; locomotive crane for Pittsburgh & Lake Erie railroad, storekeeper, McKees Rocks, Pa., bids being taken.

Cleveland, March 30.—While the improvement in sales, noted last week as prevailing in the territory, has not gone farther, there is no slacking off in business. Plenty of inquiries are in evidence, for both heavy and light equipment, but mostly calling for few items. To offset this somewhat, one prominent screw machine manufacturer here has placed about a dozen automatics with a western brass-working interest. March seems to have turned out a better month than either January or February, with business about double that for the same month of 1925. If only the well-diversified sectional and industrial demand would develop on larger scale, manufacturers would be satisfied with prospects for the next quarter.

Cincinnati, March 30.—Although inquiries for machine tools are more numerous than for some time, manufacturers and dealers find some difficulty in closing business promptly. Buyers appear in no haste to purchase readily. This is particularly true of the railroads, while the automobile and other users are more active in the market. Sales the past week were scattered and mostly involved single units. Cincinnati Planer Co. booked 22 and 42-inch planers for shipment to the East, while several of the leading manufacturers of lathes, boring mills and drills entered several orders each.

Chicago, March 30.—Most of the larger machine tool houses here are concluding a month that measures up well with last March. There is, however, a growing feeling that business in the coming quarter will not equal the corresponding period of 1924. Railroad inquiry has come to the front the past few days, the Chicago, St. Paul, Minneapolis & Omaha issuing lists. The latter is in the market for a micro internal grinder, two 18-inch engine lathes, universal tool and cutter grinder, portable pipe threader, five dry grinders, three 2-wheel floor grinders, 3-inch cut-off machine, one 36 and two 25-inch upright drills, a high speed metal saw, a power squaring shear and a 1¼-inch heading upsetting and forging machine. The North Western inquiry includes a 14-inch lathe, two hack saws and eight jaw grinders.

New Basis Is Ordered for Iron and Steel Rates

Washington, March 30.—In four orders issued yesterday, the interstate commerce commission started authorizing southern railroads to make effective a new basis of departures from the long and short haul section of the interstate commerce act, applicable to iron and steel and products.

The new basis of rates is to be the mileage plan. The scale on iron and steel articles begins with a rate of 42 cents for distances of 460 miles and not more than 480, and increases to 63 cents for distances of 1000 and more than 975 miles. The progression is in 20-mile blocks up to 800 miles, and from that distance in 25-mile groupings up to 1000 miles, the addition to the rate in each block being 1 cent. The scale on iron and steel baling ties and buckles begins with 33 cents for distances of 460 and not more than 480 miles and continues to 49 cents for distances of 1000 miles and more than 975 miles, the rate of progression being the same as on iron and steel articles. A third scale, used in the making of fourth section departure rates on iron and steel track material, calls for a rate of 29 cents for distances of 460 miles and not more than 480 miles, and continues to 1075 miles at a rate of 44 cents for distances of 1050 miles and not more than 1075 miles, the rate of progression being the same as in the other scales.

Chicago Steel Production Makes New Record

Chicago, March 30.—More finished steel was produced in the Chicago district in March than in any previous month. Official figures are lacking at this time but among producers it is assumed this is the case. The Gary works of the Illinois Steel Co. is understood to have passed its tonnage mark of last March and set a new high monthly plant record. It also appears that sheet production here has surpassed any previous month.

The Illinois Steel Co. continues to operate 20 of its 23 stacks at Gary and South Chicago. For the district as a whole 29 out of 35 steelworks stacks are active. Steel ingot capacity is engaged better than 95 per cent. The Inland Steel Co. has nearly 8000 on its payroll at Indiana Harbor, Ind., as large a force as at any time in the company's history.

With the blowing in of the second Mayville stack yesterday eight of 10 merchant stacks in this district are active and the Thomas stack at Milwaukee, down for repairs, will go in the middle of April, according to the selling agents for the stack.

Malleable Casting Sales Drop in February

Washington, March 30.—Sales of malleable castings in February totaling 58,379 tons were below those of January at 65,738 tons, but above February 1925 at 49,652 tons, according to the department of commerce based on reports from 139 companies. Production in February was 66,401 tons compared with 75,658 tons in January and 60,181 tons in February 1925. Following are further comparisons:

1925	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
January	66,338	58.1	61,127	114,198
February	60,181	53.0	49,652	113,530
March	61,209	53.9	56,429	113,641
April	62,918	55.5	57,946	113,332
May	60,972	54.2	50,569	112,495
June	58,819	51.8	47,247	113,514
July	57,172	50.3	56,873	113,624
August	56,761	49.8	48,647	113,935
September	58,474	51.4	49,780	113,697
October	68,122	61.0	65,420	111,744
November	60,800	55.1	55,552	110,278
December	65,766	59.0	53,991	111,332
1926				
January	75,658	68.2	65,738	110,824
February	66,401	59.2	58,379	110,895

†Includes 4 plants reported idle.
*Includes 5 plants reported idle.
‡Includes 6 plants reported idle.

Northwest Steel Market Holds Steady

Seattle, March 27.—Demand for iron and steel products is appearing and building is brisk. A German brand of pig iron is available at $21.50 c.i.f. and good grades of British iron are offered at about $30 c.i.f.

Finished steel is unchanged at former prices, though on two large awards of plates low bidders offered $1 under the market. Most structural jobs pending are small. Warehouse demand is light. Floor plates have been reduced from 6.25c to 5.75c to meet European competition at 4.50c. Iron and steel scrap is unchanged and in moderate demand.

American Company Buys Plant in Germany

Boston, March 30.—The Stanley Works, New Britain, Conn., recently purchased a manufacturing plant at Velbert, Rhineland in the Ruhr district of Germany. The latter has been one of the chief competitors of the Stanley Works in the European field. The announcement is made by Clarence F. Bennett, president of the New Britain concern, who bought the German plant from Frederick Carl VonBruck. Mr. Bennett says his company has an option on a manufacturing property in Brussels. The Ruhr plant has been in operation about 30 years, and employs 500 workers. John E. Cairns, formerly at the works at New Britain, has been sent to Germany to manage the plant. The Stanley Works manufactures office and building hardware.

Reinforcement Body Holds Meeting

Washington, March 30.—Members of the committee selected Jan. 26 at the conference of producers, jobbers, consumers and others interested in steel reinforcement, held their first meeting here March 25 to organize. The committee has been asked to report about Oct. 15 at a meeting in Washington. Two questionnaires may be sent out, one going to producers and the other to users of concrete reinforcing bars.

Representatives of the metal lath industry will meet with the division of simplified practice, of the department of commerce, tomorrow to consider proposals for further revision of weights and sizes of their products

Iron Imports 2125 Tons

Philadelphia, March 29.—Following are the importations of iron and steel at this port for the week ending March 27: 645 tons of pig iron, France; 1507 tons of pig iron, British India; 852 tons of steel bars, Netherlands; 74 tons structural iron, Germany; and 45 tons manganese ore, Cuba.

Start Large River Tow

Pittsburgh, March 30.—Four steamboats of the Carnegie Steel Co's fleet left Pittsburgh recently with 22 barges in tow loaded with manufactured steel products, 12 new steel barges for the Warrior River Service, and four barges loaded with coal, the latter to be used as fuel on their long trip south. This is reported to be the largest single shipment of manufactured steel products by water from Pittsburgh.

One large company which is a member of the National Safety council worked 129,188 man-hours from Sept. 1 to Dec. 31 and lost 225 hours through three lost time accidents, a loss of 1.7 hours for every 1000 hours worked. During three months 155,945 man-hours were worked with a perfect record. The average record for the year was 4 hours lost for each 1000 hours worked.

March Pig Iron Highest in Year

Production Recovers from Interruptions of February and Rises to a Level of 110,823 Gross Tons Per Day—Active Furnaces Are Increased from 223 to 235

PRELIMINARY figures on pig iron output for March, as compiled by estimates supplied by blast furnace operators, indicate that production has recovered from the interruptions incident to the unsettled coke situation of a month ago. Both the output of iron and the number of active furnaces reached levels the highest for a year, or since March, 1925. On the last day of the month, 235 or 62.4 per cent of the country's 377 serviceable stacks were active.

Pig iron made in March amounted to 3,435,525 gross tons, a figure which was 511,675 tons better than the 2,923,850 tons of February. March, however, had 31 working days, as against 28 in February. Total production, as well as the average daily output, was the highest since March, 1925. Reduced to a daily basis, iron was produced at a rate of 110,823 tons per day, which compared with the 104,423 tons per day of the preceding month,

MONTHLY PRODUCTION

	1926	1925	1924
January	3,319,789	3,372,207	3,015,489
February	2,923,850	3,214,067	3,073,619
March	3,435,525	3,571,422	3,465,389
April		3,211,266	3,226,107
May		2,933,907	2,619,986
June		2,679,045	2,022,836
Total 1st half	9,679,164	18,981,883	17,423,417
July		2,665,262	1,783,457
August		2,707,171	1,882,986
August		2,707,171	1,882,986
September		2,725,885	2,053,617
October		3,017,889	2,461,727
November		3,023,257	2,514,979
December		3,249,057	2,956,389
Total 2nd half		17,388,521	13,653,155
Grand Total	9,679,164	36,370,404	31,076,572

was an increase of 6400 tons, or 6.1 per cent.

On the last day of the month, operating blast furnaces totaled 235, against 223 active on Feb. 28. This was a gain of 12 furnaces. Of the merchant furnaces, 6 were blown in and 3 blown out or banked, the net gain being 3 furnaces. Of the steelworks or nonmerchant furnaces, 11 were made active and 2 blown out, with a net increase of 9.

With the abandonment of five additional blast furnaces, the country's list of serviceable stacks has been reduced from 382 to 377. The furnaces which have been dropped are as follows: Hanging Rock, O., furnace of the Hanging Rock Iron Co.; the Sharon, Pa., and one Mingo Junction, O., furnace of the Carnegie Steel Co.; one Oxmoor, Ala., and one Bessemer, Ala., furnace of the Tennessee Coal, Iron & Railroad Co. The latter four furnaces were properties of the Steel corporation.

Active Blast Furnaces

	In blast	Total	Per Cent
March	235	377	62.4
February	223	382	58.5
January	225	385	58.5
December	234	385	60.7
November	220	385	57.2
October	209	386	54.1

The usual monthly pig iron statistics giving final figures of production for March and showing the divisions of merchant and nonmerchant iron, ferromanganese, spiegeleisen, etc., will be published in the April 8 issue of IRON TRADE REVIEW.

Iron Ore Analyses Books for 1926 Issued

Booklets for 1926 giving details with respect to analyses of Lake Superior iron ores have been issued by the M. A. Hanna Co., Cleveland, Cleveland Cliffs Iron Co., Pickands,, Mather & Co., Clement K. Quinn & Co., John A. Savage & Co., Oglebay, Norton & Co., and the Marquette Ore Co. The booklets are the revised editions containing the names and characteristics of the various grades of iron ore now available for shipment by the respective companies.

Details are given showing the actual analyses of the ore as shipped in 1925, the expected analyses for 1926, and the guarantees. Certain new grades have been added by some of the companies, but most of those listed are of the standard shipped by them for some years. Miscellaneous information pertaining to the industry is given in some of the booklets; that of the M. A. Hanna Co. features prices and total shipments over a period of years, railroad and vessel rates, tonnages on dock, average analyses of all ores shipped from the Lake Superior district since 1902, and similar data. The majority of the booklets are illustrated with mine and vessel views.

MARCH PIG IRON

	No. of stacks	No. in blast last day of month: March	Feb.	Total gross tons
Ohio	69	52	45	805 149
Pennsylvania	134	85	81	1,204,151
Alabama	35	24	25	242,611
Virginia	17	1	1	7,780
New York	26	18	17	236,223
New Jersey	4	0	0	.....
Illinois	25	18	16	323,183
Colorado	5	3	3	
Indiana	17	16	16	466,920
Maryland	6	6	5	
Wisconsin	5	2	2	
Kentucky	7	1	1	
Tennessee	13	2	3	53,006
Utah	1	1	1	
West Virginia	4	1	2	
Michigan	4	3	3	
Minnesota	3	2	2	63,685
Missouri	1	0	0	
Texas	1	0	0	
Spiegel and ferro. all states	....	....	....	32,817
Total	377	235	223	3,435,525

American Rail Men Deny Cartel Affiliation

New York, March 30.—It seems assured that no American rail makers will be members of the proposed international cartel, which, European cable advices state, will come into operation within a week or two for the purpose of allocating orders in foreign markets.

AVERAGE DAILY PRODUCTION

	1926	1925	1924	1923	1922
Jan.	107,089	108,781	97,273	104,136	53,090
Feb.	104,423	114,788	105,987	106,925	58,220
Mar.	110,823	115,207	111,787	113,664	65,674
Apr.	.....	107,041	107,537	118,210	69,005
May	.....	94,642	84,515	124,790	74,495
June	.....	89,301	67,427	122,262	78,748
July	.....	85,976	57,531	118,860	77,517
Aug.	.....	87,328	60,741	111,254	58,408
Sept.	.....	90,862	68,454	103,917	67,466
Oct.	.....	97,351	79,410	101,375	84,827
Nov.	.....	100,775	83,832	96,373	94,870
Dec.	.....	104,808	95,367	93,952	99,468
Ave.	107,546	99,645	84,908	109,659	73,563

Elbert H. Gary, chairman of the United States Steel Corp., when questioned on the subject stated:—

"I have no information whatever in regard to an international agreement between the British, German, French and Belgian iron and steel representatives, nor any comment to make upon the subject, except that I am certain if there is such an agreement the leading iron and steel representatives of the United States are not parties to it."

A representative of the Bethlehem Steel Corp. said: "We do not believe there is anything to it."

The proposed combination is said to include rail mills in Germany, France, Belgium, Luxemburg and Great Britain in addition to American representation and to be a revival of a similar prewar organization.

Reducing Machine Shop Waste

Practical Methods Discussed in Symposium by Western Society of Engineers and Chicago Section of American Society of Mechanical Engineers—Reclamation Nets Large Profit

THIS is the day of the specialist in the tool room, declared G. A. Pennock, technical superintendent of the Hawthorne works of the Western Electric Co., Chicago, at the symposium on waste in machine shops conducted at Chicago, March 24, by the Western Society of Engineers and the Chicago section of the American Society of Mechanical Engineers.

The experience of the Western Electric Co., according to Mr. Pennock, has been that the specialist as contrasted with the all-around craftsman effects economies in final cost and time and equipment required, gives greater opportunity for standardization in parts and operations, permits the use of medium-skilled operatives at lower wage rates, and insures the utilization of the most economical method based upon quantity.

At the Hawthorne works there is an investment of $12,000,000 in tools and $1,000,000 in tool room equipment. The manufacture of telephones, switchboards and allied equipment calls for 110,000 separate parts for 13,000 different products. In 1925, 4400 major tools costing $850,000 were made, $485,000 was expended in the manufacture of small tools, and 30,000 tools were repaired at a cost of $540,000.

Four Major Groups

Tool room practice under the specialization method falls into four major groups, planning, tool designing, tool ordering and actual manufacture, Mr. Pennock pointed out. Tool designing is subdivided into punches and dies, jigs and fixtures, gages and screw machines. Manufacturing embodies milling, lathe, grinding and bench work sections, and these again are divided into smaller groups. Inspection also is specialized.

The saving made possible by the use of specialists was cited by Mr. Pennock in the case of a theoretical punch and die. The base rate for the old individual method is figured at a flat $1 per hour. The following is the comparison:

Lathe work:		
Old	9 hours	$ 9.50
New	6 hours	4.50
Milling:		
Old	10 hours	10.00
New	8 hours	4.80
Drilling:		
Old	8 hours	8.00
New	5 hours	2.50
Grinding:		
Old	5 hours	5.00
New	3 hours	2.40
Hardening:		
Old	1 hour	1.00
New	½ hour	.50
Bench work:		
Old	20 hours	20.00
New	20 hours	20.00

Thus under the old method the total was 53 hours, all at the base rate, totaling $53, while under the new the total of hours is only 42½, with only 20 at the top rate, and the cost is $34. The saving is 35 per cent. What is more, under the old method 800 really skilled operatives would be required, a number difficult to assemble under one roof today, while the program of one man for one job enables the Hawthorne works to get along with only 180 who would come under this classification.

Speaking on "Selection of Tool Steel," J. B. Mudge, metallurgist, also of the Hawthorne works, declared there was no all-purpose steel but ventured that high-speed steel is the nearest approach. He evidenced a leaning toward purchase by specification, maintaining, however, that specifications should embrace reasonable tolerances and limits, give a workable range of physical properties, and enable the maker to visualize the user's problem and produce a uniform steel. The matter of dealing with an established and experienced maker to insure a quality product and uniformity of it he appraised as all-important.

"To set up routine inspection is highly desirable," said Mr. Mudge. "Inspection costs money, but it costs more to build defective tools. Where inspection must be limited to the visual, brinell and hot acid microscopic etch tests will suffice. The latter is the most effective. An occasional check for carbon or alloy content is enlightening.

"The human element is the most important one in the hardening room. The best of material and methods count for naught in the hands of an unskilled operative. Next to the human element is automatic temperature control. Practically all of the furnaces on the market are suitable provided they are intelligently applied."

Engineering Methods Needed

"In too many machine shops we have not separated the supervisory from the managerial functions," said Hugo Diemer, director of industrial courses at La Salle university, Chicago. "By this I mean that in too many shops the entire question of production management is still turned over to a superintendent whose time is fully occupied with supervisory duties. There is no tie-up between the superintendent and the general management. It is true that in the larger organizations we do have the position of works manager. In the smaller industries it would be far more appropriate and more effective if the position of assistant general manager were created and filled by a competent engineer who makes use of the engineering point of view, the engineering approach, and engineering methods in co-ordinating production programs and problems with financial budgets and sales programs.

"This assistant general manager would be the active officer in charge

Saving by Reclamation

IN 1925 the 22-inch 3-stand bar mill and the Belgian 12-inch roughing and 9-inch finishing mill of the Santa Fe railroad at its Corwith, Chicago, reclamation plant rolled 5639 net tons of bar iron. The mills operated 175 days and the product ranged from ¼ to 2-inch rounds and ½ x ⅛-inch to 1 x 10-inch flats. The saving to the railroad, according to R. K. Graham, general superintendent, was $36.561.

Economy effected in reclaiming tie plates was also brought out by Mr. Graham in his paper, which was read by Peter Young, his assistant. Three million tie plates, discarded as scrap, were repunched at a cost of 1 cent each. They were used in place of new plates costing 19 cents each. After considering that the plates were worth $8000 as scrap, the saving was $183,284.

The Corwith reclamation plant in 1925 salvaged 8686 tons of workable material from the scrap that passed through it. In addition, 914 tons of scrap was found sufficient for further service and returned to use. The saving for the blacksmith shop alone last year was $73,246, and for all departments the net return was $322,539.

of co-ordinating with the financial sales program, such matters as control of materials and stores, and control of production. Each of these various planning, budget, and control functions are at the present time, too frequently operated as separate units without sufficient co-ordination. Too many industrial officials still consider the shop superintendent as a sort of Indian medicine man, a being who has occult power. The old-time superintendent likes to be thought of in this way because he adopts the attitude of possessing certain knowledge that no one else can understand, while the engineering type of mind feels called upon to get and present facts and make them understandable.

"Another prevalent viewpoint is the one that the thoroughly trained mechanical engineer with executive production experience is incapable of doing so-called industrial engineering work. Too often reputable business men and bankers, when they want reports or surveys in the way of industrial engineering, willingly allow themselves to fall prey to consulting firms whose officials have no broad knowledge of management engineering or industrial engineering, who are not themselves engineer-trained men and who do not employ the engineering viewpoint, the engineering method of approach, or engineering methods in their installation work.

"These firms too often exploit a single specialty or system, and have no idea of its co-ordination with, or fitting into the general scheme of business or production of the prospective client.

"The fact that such firms often employ high-pressure salesmen on a commission basis to secure clients, apparently counts considerably in their favor and is apparently not offset disadvantageously by the fact that they hire cheap help, too often, young and incompetent engineers who are out of a job, to conduct the work of surveys and system installation. Much of our managerial wastes in industry is bound to continue so long as company officials will employ charlatans for this work instead of real scientists and real engineers."

How To Avoid Waste

Waste, which is industry's biggest problem, can be eliminated only through employe co-operation, said George Hodge, assistant manager of industrial relations for the International Harvester Co., Chicago. Referring first to the problem of safety, Mr. Hodge told of the efforts 18 years ago to put this work on an organized and systematic basis.

"For the first 11 years we concentrated on mechanical safeguarding and on a system of rules, regulations and discipline with careful and continuous inspection," said Mr. Hodge. "The results were good, but not good enough.

"Then, in 1919, came the new safety factor of employe representation through the works councils.

"Having concentrated on mechanical safeguarding from 1908 to 1923, we felt that our machines were reasonably well safeguarded; indeed, our records showed that less than 20 per cent of our lost time cases might have been prevented through still better mechanical safeguarding. Clearly, therefore, education, training and individual employe co-operation must be the means of reducing the other 80 per cent of our lost time accident cases.

"Management could do better on its side of the equation, and management did. Our whole safety system was reorganized, reconstructed and reenergized for that purpose and with that effect.

"How have the employes stacked up on their side of the equation? I can only say that in both kind and degree the co-operation in safety work that we have received from our employes has been truly remarkable; and I will add that in my own opinion, this co-operation could never have been obtained without the works councils and without the spirit and atmosphere of mutual understanding and mutual interest that they have created as between our company and its employes.

"During the period from 1908 to 1923, 75 per cent improvement was accomplished in lost time cases due to accidents. In 1924 there was a 12 per cent improvement over 1923 and 1925 similarly showed a 12 per cent improvement over 1924.

"There is another kind of industrial waste that is none the less serious because its results cannot be weighed or counted or measured. I refer to the potential waste of intelligence that exists in any shop or business, big or little; the waste of constructive ideas that 'die abornin' before they can reach administrative attention; the waste of undeveloped or undirected thoughts in which the seeds of progress exist in untold quantity but never germinate.

"Various keys have been tried in the lock of that secret treasure house of ideas which exists in every industrial establishment, but none of them has opened it. You are all aware, of course, of suggestion systems of various kinds that have been employed for the purpose of tapping this great reservoir of unused intelligence. Some of these have proved more effective than others, but none of them has come anywhere near approximating ideal results."

Avoiding Managerial Waste

HUGO DIEMER, director of industrial courses, La Salle university, Chicago, suggested the following five means for reducing managerial wastes in machine shops:

1. *An awakened interest in, appreciation of, and contact with investigations and progress made in industrial and management engineering on the part of higher industrial executives and officials.*

2. *Further development of trade associations, and in those already existing, the employment of capable industrial and management engineering service.*

3. *Exercise of better discretion and judgment in the employment of consultation service along industrial and management engineering lines.*

4. *Recognition of the necessity of permanent staff assistants, competent, engineer-trained men to act as works managers in the larger industries, and as assistant general managers in the smaller industries, to help the general manager in co-ordinating financial, sales, marketing, human relations, and employment programs and budgets.*

5. *Recognition by technical engineers that they must tie up designs, specifications, and tests with such matters as materials and stores standardization and control; with planning and standardization of operations; planning for standardization of inspection and predetermined costs; recognition by technical engineers that in order to do this, they must familiarize themselves with the principles and advanced methods applied in modern production engineering, industrial engineering, and general management.*

1925 Pig Iron Up 16 Per Cent

Country's Production of All Grades Amounts to 36,700,566 Gross Tons, According to Statistics of American Iron and Steel Institute—Total Is 3,660,580 Tons Below 1923 Record

PRODUCTION of pig iron in the United States in 1925 amounted to 36,700,566 gross tons, according to official figures just announced by the American Iron and Steel institute. This output was a gain of 5,294,776 tons, or 16.86 per cent, over the 31,405,790 tons made in 1924 and was the sixth highest production on record, the 40,361,146 tons made in 1923 taking first place. Pig iron made in the first half of 1925 totaled 19,145,750 tons, according to revised figures of the institute, and 17,554,816 tons in the last half.

Making up the 1925 total was 19,667,380 tons of basic, 9,419,461 tons of bessemer, 5,410,217 tons of foundry, 1,553,636 tons of malleable, 240,652 tons forge, and 409,220 tons of all other. On a percentage basis as compared with 1924, basic increased 22.93 per cent; bessemer, 15.26 per cent; malleable, 59.65 per cent; while foundry decreased 3.79 per cent and forge 5.98 per cent. Basic represented 53.59 per cent of the total in 1925, as compared with 50.94 per cent in 1924; bessemer 25.67 per cent against 26.02 per cent; and foundry 14.74 per cent against 17.90 per cent.

Pennsylvania made 12,523,485 tons, or 34.12 per cent of the country's total; Ohio made 8.862,646 tons. or 24.15 per cent; Indiana and Michigan 4,119,811 tons or 11.22 per cent and Illinois 3,604,255 tons or 9.82 per cent.

According to the institute's statistics, 27,709,234 tons of the country's total in 1925 was made for the maker's use and 8.991,332 tons was made for sale. This represented a proportion of 75.5 per cent nonmerchant and 24.5 per cent merchant. The corresponding figures for 1924 were 73.2 per cent and 26.8 per cent.

On the basis of fuel used, 36,504,402 tons was made with coke, and 196,164 tons was made with charcoal. The production with coke included pig iron and ferroalloys made with electricity, electricity and coke, etc. Coke iron represented 99.5 per cent of the 1925 total. The corresponding ratios for 1924 and 1923 were 99.3 per cent and 99.4 per cent, respectively.

Charcoal pig iron, which amounted to 196,164 tons in 1925, showed a loss of 16,546 tons, or 7.7 per cent. The hot and warm blast method was used in making 195,150 tons of the total and the cold blast method for the balance of 1014 tons. Production of ferromanganese and spiegeleisen totaled 325,784 tons in 1925 against 301,309 tons the year before. Ferrosilicon totaled 226,472 tons as compared with 200,321 tons in 1924. On June 30, active blast furnaces counted 198, while on Dec. 31, 238 of the country's 395 were in operation.

Forgelight Iron Works, New York, has increased its capital from $30,000 to $50,000.

PRODUCTION OF COLD AND HOT AND WARM BLAST CHARCOAL PIG IRON, 1921–1925.

Kinds of pig iron.	1921.	1922.	1923.	1924.	1925.
Cold blast	350	.....	.....	.....	1,014
Hot and warm blast	94,380	224,731	251,177	212,710	195,150
Total.....Gross tons.	94,730	224,731	251,177	212,710	196,164

TOTAL PRODUCTION OF PIG IRON ACCORDING TO FUEL USED.

Coke*	191	232	143	375	‡19,048,618	17,455,784	36,504,402
Anthracite†	0	0	1	1	.....	.....	.....
Charcoal	7	6	13	19	97,132	99,032	196,164
Total	198	238	157	395	‡19,145,750	17,554,816	36,700,566

* Includes pig iron and ferro-alloys made with electricity, electricity and coke, etc.
† Includes mixed anthracite and coke pig iron. ‡ Revised.

PIG IRON MADE FOR SALE OR FOR USE OF MAKERS IN 1925.

Grades.	For sale.	For maker's use.	Total. Gross tons.
Basic	1,951,329	17,716,051	19,667,380
Bessemer and low-phosphorus	558,251	8,861,210	9,419,461
Foundry, including ferro-silicon	4,908,730	501,487	5,410,217
Malleable	1,323,252	230,384	1,553,636
Forge or mill	63,661	176,991	240,652
Ferro-manganese / Spiegeleisen	146,418	179,366	325,784
All other grades	39,691	43,745	83,436
Total.....Gross tons.	8,991,332	27,709,234	36,700,566

PRODUCTION OF PIG IRON BY GRADES, 1909–1925.

Years	Basic.	Bessemer.	Foundry.	Malleable.	Forge.	All other.	Total. Gross tons.
1909.	8,250,225	10,557,370	5,322,415	658,048	725,624	281,789	25,795,471
1910.	9,084,608	11,245,642	5,260,447	843,123	564,157	305,590	27,303,567
1911.	8,520,020	9,409,303	4,468,940	612,533	408,841	229,910	23,649,547
1912.	11,417,886	11,664,015	5,073,873	825,643	469,183	276,337	29,726,937
1913.	12,536,693	11,590,113	5,220,343	993,736	324,407	300,860	30,966,152
1914.	9,670,687	7,859,127	4,533,254	671,771	361,651	235,754	23,332,244
1915.	13,093,214	10,523,306	4,843,899	829,921	316,214	309,659	29,916,213
1916.	17,684,087	14,422,457	5,553,644	921,486	348,344	504,779	39,434,797
1917.	17,671,662	13,714,732	5,328,258	1,015,579	345,707	545,278	38,621,216
1918.	18,646,174	13,024,966	5,145,260	1,117,914	393,932	726,398	39,054,644
1919.	14,494,131	9,975,934	4,916,758	1,009,049	271,286	348,206	31,015,364
1920.	16,737,722	12,062,084	5,957,782	1,310,951	318,048	539,400	36,925,987
1921.	7,753,071	5,595,215	2,568,136	457,340	112,748	201,616	16,688,126
1922.	13,841,367	7,813,203	3,976,431	1,051,495	214,210	323,198	27,219,904
1923.	19,795,590	11,677,509	6,470,013	1,571,064	327,430	519,540	40,361,146
1924.	15,999,012	8,172,297	5,623,124	973,158	255,961	382,238	31,405,790
1925.	19,667,380	9,419,461	5,410,217	1,553,636	240,652	409,220	36,700,566

Discuss Die Casting of Alloys

British Institute of Metals Meets in London—Fifteen Technical Papers Presented in Two-Day Session—Association Shows Gratifying Growth in Membership and Finances

GRATIFYING results from the viewpoint of increased membership and the financial position were disclosed at the annual general meeting of the Institute of Metals which was held in London, March 10 and 11, in the hall of the Institution of Mechanical Engineers. At the opening session the chair was occupied by Professor T. Turner, university of Birmingham, the retiring president.

As a result of the ballots for the election of the council for 1926, Sir John Dewrance, chairman of Dewrance & Co., London, was elected president for the term 1926-27. Two vice presidents were re-elected, Sir Thomas Kirke Rose of the Royal Mint, and W. Murray Morrison, British Aluminum Co., and one new vice president, Engineer Vice Admiral Sir Robert B. Dixon. Vacancies for members of the council were filled by T. Bolton, H. A. Ruck-Keene and D. R. Seligman of London, James Steven of Glasgow, H. B. Weeks of London, who were re-elected, and William Glasier Turner, Sheffield.

In the report of the council it was stated the number of members on the roll of the institute Dec. 31, 1925, was 1692. However, to date this figure was increased to 1747 members. A large number of foreign members have joined and since the Locarno treaty, German members also have been included. The new corresponding members have been appointed. Professor J. Neill Greenwood now represents the council in Australia, and Professor A. Sapojnikoff in Russia. It was announced that the autumn meeting this year will be held in Liege, Belgium.

Boiler Corrosion Is Studied

In accordance with the reorganization which took place last year, the committee on corrosion research has continued the technical work connected with corrosion of condenser tubes. So far the results confirm many of the experiments made on a small scale, and a number of interesting new points have been observed. The main investigation during the past year has been a study of the influence of iron compounds on corrosive actions and scale formation. The preparation of a revised edition of the pamphlet entitled "Notes on the Corrosion and Protection of Condenser Tubes" was completed, and the pamphlet was published during the year.

The council approved a plan for providing a memorial to the late Sir George Beilby, past president. This memorial will take the form of a fund to provide a prize of substantial value to be awarded once in every four or five years for scientific work of distinguished merit.

The report of the honorary treasurer was satisfactory since the financial year 1924-25 resulted in a surplus of £710 15s 8d, as against a deficit of £6 7s 4d for the preceding year. This improvement was due mainly to the increase in membership.

Fifteen papers were submitted at the technical sessions. The first was by George Mortimer, William Mills, Ltd., Atlas Works, Birmingham, on the die casting of aluminum alloys.

Of five present methods of die casting briefly reviewed, pressure casting and gravity casting were selected for closer consideration as being the more generally applicable to industry. It was pointed out that pressure casting has been developed extensively by Americans, some of whom have brought the art of rapid production of accurate castings to a high standard of excellence. The author said that pressure castings may be thinner, more accurate, better finished, and produced at a far greater rate from one mold than gravity castings, but normally they are not so sound or so reliable as castings poured by gravity. The gravity mold also is cheaper in first cost and upkeep charges, and the requirements of the industry in Great Britain at present are best met by the more flexible gravity process.

The author pointed out that there is no standard practice, the main essentials being close consideration of four factors; the light weight of the alloys; their high crystallization shrinkage; their solid contraction, and weakness at high temperatures. The most significant of these he said is that of crystallization shrinkage, and research in the direction of alloys of lower shrinkage would be of value.

The discussion which followed was opened by Dr. R. Hutton who said that pressure casting is just shooting metal into the mold, and that the pressure is not retained. S. L. Archbutt, National Physical laboratory, said much may develop from a study of aluminum alloy die casting, especially with respect to alloys which can be heat treated.

Dr. F. Johnson, metallurgical department, municipal technical school, Birmingham, asked whether the zinc contained in certain alloys has a tendency to increase the action of the metal on the molds. He pointed out that the author had said nothing about annealing the casting to remove stresses. Dr. Johnson stated he had tried the Gothias process which was alluded to in the paper in the die casting of brass, and he said in his opinion this treatment can be extended to other alloys provided clean metal is used.

Seek Soundness in Castings

Dr. Walter Rosenhain, National Physical laboratory, and vice president of the Institute of Metals, said that to obtain the correct figure of crystallization shrinkage one should consider the density of the metal which has been finally obtained. He stated castings sometimes were obtained which contained cavities, whereas in other cases general porosity is noted. He laid stress on the fact the rate of inflow of the metal and the rate of solidification are important for the general soundness of a casting. Even in die castings there are some gas voids, and exposure of the metal to gas or air under pressure may have serious results.

Dr. H. Moore, London, stated the real problem is to acquire soundness of the casting. Dr. Jenkin, National Physical laboratory said it may be necessary to heat molds to a higher temperature than 450 centigrade, and inquired whether these increased temperatures would be detrimental.

Other papers of a purely scientific nature were read and discussed during the following sessions. They included a paper on the hardness of cold rolled copper, by Samuel L. Hoyt and T. R. Schermerhorn, research laboratory, General Electric Co., New York. Professor Portevin of Paris also presented a paper which was a contribution to the study of the mode of action of etching reagents.

News of Societies

IN ADDITION to the regular group sessions scheduled for the thirteenth National Foreign Trade convention, to be held at Charleston, S. C., April 28-30, three general sessions have been set for 10 a. m., April 28 and 29, and 2:30 p. m. April 30. Group sessions will convene at 2:30 p. m., April 28 and 29, and 10 a. m. April 30.

The tentative program includes the following papers:

Wednesday, April 28

GENERAL SESSION

10 a. m. "The Foreign Trade Outlook," by President James A. Farrell, president, United States Steel Corp., New York.
10 a. m. "Commercial Possibilities of the South Atlantic," by R. Goodwyn Rhett, president, Peoples First National bank, Charleston, S. C.

GROUP SESSIONS

2:30 p. m. "Who Needs to Be Educated?" by W. E. Butterbaugh, traffic management department, La Salle Extension university, Chicago.
2:30 p. m. Banking facilities for foreign trade.

Thursday, April 29

GENERAL SESSION

10 a. m. "The Problem of the Far East," by Dr. Jeremiah W. Jenks, Alexander Hamilton institute, New York.
10 a. m. "The European Situation for 1926," by H. M. Robinson, president, First National bank, Los Angeles.
10 a. m. "The Import Element of Our Foreign Trade," by F. I. Kent, vice president, Bankers Trust Co., New York.

GROUP SESSIONS

2:30 p. m. Export sales policy: adaptation of products; executive attitude, and trend of manufacturing costs.
2:30 p. m. "Foreign Credits," by C. C. Martin, chairman, Foreign Credit forum, New York.
2:30 p. m. "How and When to Grant Credit," by E. B. Filsinger, export manager, Lawrence & Co., New York.
2:30 p. m. "Credit Pitfalls and How to Avoid Them," by D. W. Fernhout, export manager, Manning Abrasive Co., New York.
2:30 p. m. "Inland Rate Structure of the Southeast," by Thomas J. Burke, traffic commissioner, Charleston, S. C.

Friday, April 30

GROUP SESSIONS

10 a. m. "Markets New and Old," by F. K. Rhines, export manager, General Fireproofing Co., New York.
10 a. m. "Direct Results of Advertising," by A. T. Preyer, director of sales, Vick Chemical Co., Greensboro, N. C.
10 a. m. "Indirect Advertising Results," by D. L. Brown, sales manager, Goodyear Tire & Rubber Co., Akron, O.
10 a. m. "Building Goodwill for American Products," by J. W. Sanger, manager, foreign department, Frank Seaman Inc., New York.

GENERAL SESSION

2:30 p. m. "The South's Part in American Exports," by G. G. Crawford, president, Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
2:30 p. m. "Making American Competition Effective," by C. C. Martin, National Paper & Type Co., New York.

* * *

Broadcast Steel Treater Program

At a meeting of the Indianapolis chapter of the American Society for Steel Treating, held March 22, several short addresses on steel were radiobroadcasted over station WFBM. National President R. M. Bird spoke on "Steel, Brought to the Home," while National Secretary H. Eisenman's subject was "Steel, the Backbone of Industry." F. R. Palmer, metallurgist, Carpenter Steel Co., Reading, Pa., presented a shop talk on "Giving Steel Tools a Chance."

* * *

Mining Congress Meets May 24-28

Accident prevention, mine drainage, shooting coal and blasting, mine conveyors and track systems are some of the important topics on the program of the annual convention of the American mining congress, to be held in Cincinnati, May 24-28. Details of the several sessions were worked out at a recent meeting of members of the program committee in the William Penn hotel, Pittsburgh.

* * *

Summer Courses Announced

Summer courses in engineering at the Carnegie Institute of Technology, Pittsburgh, are announced to begin June 14, covering six and eight week periods. The college of engineering will give courses in physics, mechanics, coal mining, surveying and chemistry, and includes work in welding, sheet metal work, machine practice, electric wiring and radio communication. Other departments will provide training in general educational subjects.

* * *

Plan Round Table Sessions

At the spring meeting of the American Electrochemical society, to be held at the Chicago Beach hotel, Chicago, April 22-24, two round table discussions will be held at noon, April 2. The electrothermic division will discuss "Comparative Merits of Electric and Fuel-Fired Furnaces," while the electrodeposition division will take up "The Selection of Proper Plating Metals." The following papers also are included in the program: "The Nature of the Protective Film of Iron," by T. Fujihara; "Note on the Protection of Iron by Cadmium," by Henry S. Rawdon.

Convention Calendar

April 6-8—American Oil Burner association. Annual convention and exposition, Book-Cadillac hotel, Detroit. Office of secretary, 350 Madison avenue, New York.

April 15-16—National Metal Trades association. Twenty-eighth annual convention, Hotel Astor, New York. J. E. Nyhan, Peoples Gas building, Chicago, secretary.

April 21-23—American Welding society. Annual meeting at Engineering Societies building, New York. Miss M. M. Kelly, 29 West Thirty-ninth street, New York, secretary.

April 22-24—American Electrochemical society. Meeting, Chicago Beach hotel, Chicago. Colin G. Fink, Columbia university, New York, secretary.

April 28-30—National Foreign Trade council. Thirteenth annual convention, Francis Marion hotel, Charleston, S. C. O. K. Davis, India house, 1 Hanover square, New York, secretary.

May 3-6—American Society of Mechanical Engineers. New England regional meeting, Providence, R. I. Calvin W. Rice, 29 West Thirty-ninth street, New York, secretary.

May 10-15—Association of Chemical Equipment Manufacturers Inc. Second chemical equipment and process engineering exposition, Public hall, Cleveland. Roberts Everett, 1328 Broadway, New York, secretary.

May 12—American Refractories institute. Annual meeting at Bellevue-Stratford hotel, Philadelphia. D. A. Texter, 2202 Oliver building, Pittsburgh, secretary.

May 13-15—American Gear Manufacturers' association. Annual meeting at Book-Cadillac hotel, Detroit. T. W. Owen, 2443 Prospect avenue, Cleveland, secretary.

May 17-21—National Association of Sheet and Tin Plate Manufacturers. Fourth annual meeting at Hotel Greenbrier, White Sulphur Springs, W. Va. Walter W. Lower, 421 Oliver building, Pittsburgh, secretary.

May 17-22—American Supply and Machinery Manufacturers' association. Annual convention at Hotel Statler, St. Louis. F. D. Mitchell, 1819 Broadway, New York, secretary.

May 18-20—Southern Supply and Machinery Dealers' association. Annual convention at St. Louis. Alvin M. Smith, Richmond, Va., secretary treasurer.

May 20-21—American Society for Steel Treating. Spring sectional meeting, Hotel Bond, Hartford, Conn. W. H. Eisenman, 4600 Prospect avenue, Cleveland, secretary.

June 1-4—Society of Automotive Engineers. Summer meeting at French Lick Springs, Ind. Coker F. Clarkson, 29 West Thirty-ninth street, New York, secretary.

June 7-10—Association of Iron and Steel Electrical Engineers. Twenty-second annual convention and exposition at Hotel Sherman, Chicago. John F. Kelly, 513 Empire building, Pittsburgh, secretary.

June 9-12—National Association of Purchasing Agents. Eleventh annual convention and exposition, Ambassador hotel and Auditorium, Los Angeles. W. L. Chandler, Woolworth building, New York, secretary.

June 16-18—Society of Industrial Engineers. Thirteenth national convention, Bellevue-Stratford hotel, Philadelphia. George C. Dent, 608 South Dearborn street, Chicago, executive secretary.

June 21-25—American Institute of Electrical Engineers. Annual convention at White Sulphur Springs, W .Va. F. L. Hutchison, 29 West Thirty-ninth street, New York, secretary.

June 21-25—American Society for Testing Materials. Annual convention at Chalfonte Haddon hall, Atlantic City, N. J. C. L. Warwick, 1315 Spruce street, Philadelphia, secretary.

June 28-July 1—American Society of Mechanical Engineers. Spring Summer convention at Palace hotel, San Francisco. Calvin W. Rice, 29 West Thirty-ninth street, New York, secretary.

Standard Machines in Greater Demand

(*Concluded from Page* 874)

pipe and holds it during the threading operation. At the proper time, the pipe is released on the opposite side of the machine. Capacity of the unit is from ½ to 2-inch pipe in lengths up to 22 feet. A reamer may be used in connection with the dies so that stock can be reamed during the threading operation. Production on these machines can be almost any rate up to the endurance of the die chaser. Pipe of ¾-inch diameter has been threaded at the rate of 63 pieces per minute.

In No. 56 is described a side head crank planer recently developed by the Consolidated Machine Tool Corp. It is built in two sizes, one having a 34-inch and the other a 39-inch stroke. In addition to the regular rail head, the machine has an adjustable side head with vertical power feed and hand adjustment. A second head may be placed on the other side. When desired the side head may be lowered below the table top. It has a relief tool apron with double clamp and may be swiveled 45 degrees to either side. Six speed changes are provided. The stroke adjustment is made from the operating side of the machine by means of a crank handle with an indicator showing the length of stroke in inches.

Pratt & Whitney Co. has just added to its line of lathes a 20-inch model featuring an increased swing with the necessary extra power and strength. This lathe, which is described as No. 54 in the accompanying digest, is designed primarily for motor drive, the motor being placed in a cabinet leg. This construction lowers the center of gravity of the unit and reduces vibration. Sixteen spindle speeds are provided instead of the usual eight. The extra speeds are necessary to obtain constant cutting speed since the diameter of work will vary from 0 to 20 inches. The unit is particularly suitable for cutting threads, the range being 36 threads from 1 to 56 pitch. The machine is available with three lengths of bed with 48, 72 and 96 inches center distances.

Among 500 industrial plants included in a survey by the National Industrial Conference board, 447 reported total annual expenditures of more than $5,000,000 for medical service rendered to their employes. The average annual expenditures amounted to only $1.03 for each $1000 worth of products, or $3.62 for each $1000 paid in wages.

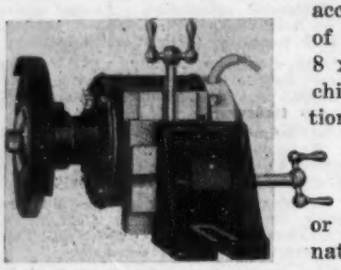
Columbia Steel Corp. Net Is Higher in 1925

The calendar year 1925, which marked the first full annual period in which the manufacturing units of the Columbia Steel Corp., San Francisco, were in operation, is described as showing substantial progress in the current pamphlet report of the company. Net profits on sales for the year amounted to $1,395,225 compared with $760,224 in 1924. The gross income increased $608,845 aggregating $1,471,687. After deducting income charges for interest on bonds and notes, for federal income tax, and other items, there was left for surplus a net income of $777,943, or over two and one-half times the net income of 1924. The company's properties were maintained during the year, according to the report, in a high state of efficiency, expenditures for upkeep of the year amounting to $686,382. Referring to 1925 report says that summing up the year, it may be accurately characterized as a period of large volume both in production and sales, with low prices and small margins of profits.

Special Grinder Has Two Slides

No. 59

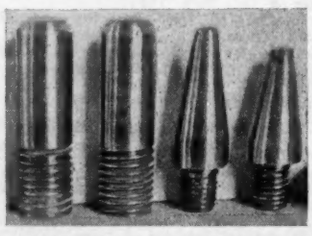
Hisey-Wolf Machine Co., Cincinnati, recently placed on the market a new double slide type angle plate grinder, both slides operating independently, giving quick and accurate adjustment. Size of the grinding wheel is 8 x ¾ inches. The machine is made for operation with a ½-horsepower motor, with speed of 300 revolutions per minute direct or 3400 revolutions alternating current.



Welding Electrode Has Long Life

No. 61

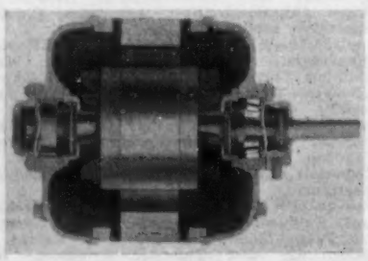
General Electric Co., Schenectady, N. Y., has developed a copper-tungsten electrode for spot welding with a brinell hardness of 225, and a compressive strength of 208,000 pounds and tensile strength of 56,350 pounds per square inch. It does not anneal at red heat. Inserts only are used in the die, the remainder of the die being copper. The product is being manufactured by the Elkon Works Inc., Weehawken, N. J.



Motor Utilizes Roller Bearings

No. 60

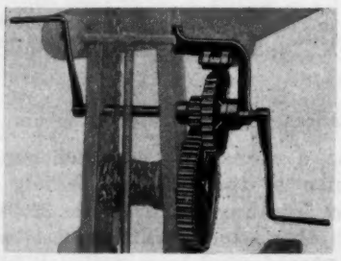
Howell Electric Motors Co., Howell, Mich., has brought out a line of motors with antifriction bearings insuring a continuous uniform air gap. Tapered roller bearings of nickel molybdenum alloy steel are shimmed with a fluted wire acting as a compression spring. The motors are mounted vertically or horizontally.



Introduces Safety Friction Brake

No. 62

Canton Foundry & Machine Co., Canton, O., is marketing a new improved portable crane with a safety friction load brake. The brake is operated by friction disks in connection with a helix, so designed that the pawl always engages the ratchet. It is necessary to wind the load down as well as to raise it, insuring safety to the operator.



Flue Gas Recorder Motor Driven

No. 63

Republic Flow Meters Co., Chicago, has perfected a motor-driven CO_2 flue gas recorder designed for accuracy and ruggedness and unaffected by variations in the purity of city water. All steel pinions, gears and worms are hardened and polished, with fiber or composition gears used where necessary to reduce vibration and noise. Shafts of tool steel run in brass bearings. All main moving parts of the meter are immersed in oil.

Builds Trolley for Small Hoists

No. 64

American Engineering Co., Philadelphia, has announced a new motor trolley for use with its ½-ton and 1-ton electric hoists. This trolley is made with a travel speed of 80 or 120 feet per minute, giving an inexpensive overhead system for handling small loads, 22-inch headroom being sufficient. All four wheels are driven, the three main castings from which hoist and load are suspended being cast steel. Spur gear drive is completely enclosed, running in an oil bath.

Index of New Equipment Described in This Issue

No.	Equipment	Manufacturer	Page
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52.	Portable air hoist	Ingersoll-Rand Co.	872
53.	Inclinable press	Loshbough-Beck Press Co.	872
54.	20-Iinch lathe	Pratt & Whitney Co.	872
55.	Pipe threading machine	Davis & Thompson Co.	873
56.	Side-head planer	Consolidated Machine Tool Corp.	873
57.	Cutter grinder	Pratt & Whitney Co.	874
58.	Riveting machine	Hanna Engineering Works	874
59.	Angle plate grinder	Hisey-Wolf Machine Co.	906
60.	Electric motor	Howell Electric Motors Co.	906
61.	Welding electrodes	Elkon Works Inc.	906
62.	Hoist brake	Canton Foundry & Machine Co.	906
63.	Flue gas recorder	Republic Flow Meters Co.	907
64.	Hoist trolley	American Engineering Co.	907

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Connor, W. B., Co.	1/14
Consolidated Machine Tool Corp.	1/14, 2/4, 3/4, 4/1
Cutler-Hammer Mfg. Co.	1/14
Davis & Thompson Co.	4/1
Defiance Machine Works	4/1
De Laval Steam Turbine Co.	1/14, 2/4
Elkon Works Inc.	4/1
Engelhard, Charles, Inc.	1/14
Ernst Krause & Co.	1/14
Farrel Foundry & Machine Co.	1/14
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1. Locomotive frame	1/14
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47. Portable tools	3/4
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20. Mill gear drive	1/14
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Commission's Act "Deceptive"

Questionnaires Prying Into Business of Trade Associations Did Not State All the Facts, Says W. E. Humphrey in Dissenting Opinion—Legal Right Lacking—Board Is "Not a Detective Bureau"

WASHINGTON, March 30.—With a vigorous attack on the kind of questionnaires sent out by the federal trade commisssion to trade associations under the senate resolution directing the commission to investigate the activities of "open price associations," Commissioner William E. Humphrey has issued a vigorous dissenting opinion to the procedure of the commission.

In his statement, Commissioner Humphrey regrets the commission did not obtain a legal opinion as to its right to "spend money to secure information that it has no legal right to obtain."

In sending out the elaborate questionnaires to all trade associations that were not "open price associations," the commission action was deceptive and coercive, in not stating that it had no legal right to require that the questions be answered, he contends.

Procedure of the commission under senate resolution 28, which was passed hurriedly in the special session of the senate last March, has aroused the ire of trade associations. The commission sent questionnaires to all "open price associations," as far as was known, and stirred up resentment among legitimate trade associations.

The replies having been unsatisfactory to the economic division of the trade commission, Dr. Francis Walker, the head of the division, asked the commission for authority to send out questionnaires to associations that obviosuly were not "open price."

Commissioner Humphrey vigorously dissents to the latter procedure. He is the leader of the Republican majority on the commission, the other majority members being Vernon W. Van Fleet and Charles W. Hunt. Commissioner Van Fleet, however, in this case made the motion to permit the action.

Commissioner Humphrey, in his dissent, quotes a part of the third paragraph of the senate resolution:

"Whereas such associations may exert a large influence in maintaining prices at an exorbitant level, particularly in the case of manufacturing concerns, the products of which are protected by a high tariff . . ."

His statement then continues:

"He would be a credulous political neophyte who could not translate the meaning of that language. Every member of congress and of this commission has announced that the commission should not be used for political purposes, and yet, under this resolution the commission proceeded to have questionnaires sent as far as known, to all 'open price associations.'

"It is well to keep in mind that Dr. Walker, when he asked this permission, and Commissioner Van Fleet, who made the motion to permit this action, both agree that other than 'open price associations' are not within the provisions of the resolution. It is, therefore, admitted that we have no legal right to require these other associations to answer any questionnaire, and it is also admitted that these other associations have never been accused of any wrong.

"It has frequently been asserted that the federal trade commission, contrary to the intents and purposes for which it was created, and without any authority to do so, has persistently annoyed and irritated business institutions and put them to great trouble and expense by unauthorized and unwarranted requests and demands for information relative to the conduct of their business. Heretofore these complaints have been made where the commission has proceeded against such parties as have been accused by someone of violating the law; but we now propose to extend this inquisitorial system of prying into the private business of these who have not been accused, against those who are admitted to have done nothing wrong.

"The action of the commission, in my judgment, is especially to be regretted because of the questionnaires sent out and the letters accompanying them contain on their face an element of deception; in this, they do not plainly state that the commission has no legal right to require them to be answered.

"Such failure is to a degree not only to practice coercion but it is an attempt to obtain evidence by a method that has in it an element of fraud and false pretence.

"The commission is not a detective bureau, nor a secret service organization, and we cannot afford to attempt to obtain information by any method that contains an element of deception or coercion."

Propose Refinancing for Witherbee, Sherman

A proposal to readjust finances of Witherbee, Sherman & Co. has been submitted to holders of the company's first mortgage, 6 per cent sinking fund, series A gold bonds. A letter to the bondholders states the company met in full on Nov. 1, 1925 the interest and sinking fund obligations on the bonds, but it has an over-due bank debt of $1,500,000, which the company is not now in a position to pay. The agreement which has been formulated and submitted for the assent of bondholders provides for the raising of additional working capital, for an extension of its bank debt, and for temporary relief from the semi-annual sinking fund obligations on the bonds.

By this agreement $500,000 is to be advanced by the stockholders upon 6 per cent notes of the company, maturing Dec. 31, 1930; $1,500,000 of bank debt is to be funded by similar notes maturing on the same date; holders of at least 80 per cent in principal amount of the bonds are to waive the sinking fund upon their bonds until Dec. 31, 1930; holders of at least 80 per cent of its common stock are to deposit their holdings under a voting trust under which there are to be three voting trustees.

Under the terms of the agreement the $500,000 to be advanced by the stockholders, as well as the $1,500,000 bank debt to be funded, will rank junior to the first mortgage bonds as to the mortgaged property. This makes a total including $400,000 already advanced by the stockholders of approximately $2,400,000 of new money so ranking junior to the bonds.

E. O. Marting, formerly of the Marting Iron & Steel Co., Ironton, O., has been selected by the bankers involved to manage the business.

Canada's Production Falls

Toronto, March 29.—Coke produced in Canada in February totaled 49,746 gross tons, against 56,644 tons for January, the drop being 12 per cent. Compared with the 29,506 tons of February, 1925, however, production was a gain of 69 per cent. No additional furnaces were blown in during the month, five stacks being active on Feb. 28. Reflecting the lower output of pig iron, steel ingots and castings production in February amounted to 53,157 gross tons and showed a decline of 22 per cent from the 68,536 tons of January. The drop was wholly in steel ingots, which fell to 50,207 tons for the month.

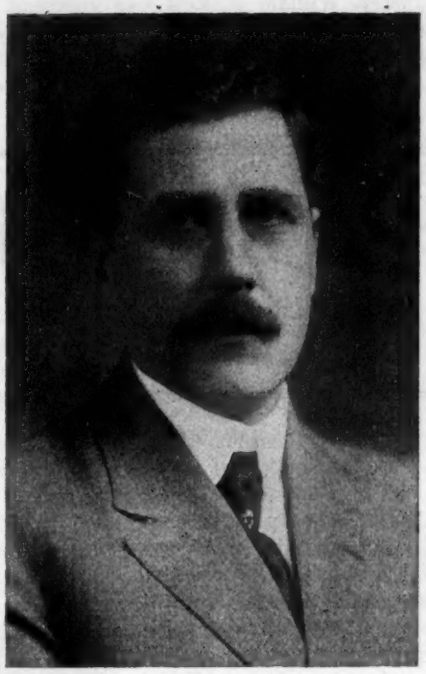
Industrial Men in the Day's News

John Reis, Retiring Vice President of the Steel Corporation

RETIRING after nearly half a century of close identification with iron and steel, he is the last of seven members of that family to have achieved high rank in the industry.

HIS operating abilities are reflected by his having served as general superintendent for the Carnegie Steel Co. of all blast furnaces, steelworks and rolling mills in the Shenango Valley.

QUIET and retiring, unexcitable, sincere and straightforward, it is natural that he should be an inveterate reader. His other hobbies, golf and fishing, he plans also to indulge at his Montclair, N. J., home.



APRIL 1 marks the passing from active service of the last member of a family prominently and continuously identified with the iron and steel industry for 75 years. This family has seen productive capacity increase from two and one-half million tons of puddled iron to over 45 million tons of steel ingots per year; it has seen the transition of the blast furnace from the old open-top stack making seven or eight tons a day to the modern stack with over 800 tons a day possible.

On April 1, John Reis will retire as vice president of the United States Steel Corp. He is the last of a family of a father and six sons, all of whom attained positions of prominence in the industry, to step out of the harness.

John Reis dates his first interest in the industry over 45 years ago. Born in Niles, O., in 1861, the son of George C. Reis, shortly afterward he moved with the family to New Castle, Pa. There his father formed the firm of Reis, Brown & Berger and became one of the largest manufacturers of rolled iron in the United States. Young John received a common school education and promptly entered the works at New Castle, which by that time had come into the control of his brothers. In his brothers' mills he learned first hand the details of plate and sheet rolling and blast furnace operations.

In 1886 Mr. Reiss began a series of migrations to various parts of the country in the service of several iron and steel companies, and that same year became vice president and general manager, Gogebic Furnace Co., manufacturing charcoal iron in upper Michigan. Manager in 1888 of the Nashville Iron, Steel & Charcoal Co., with furnaces at West Nashville, Tenn., the following year he went with the Tennessee Coal, Iron & Railroad Co., Birmingham. Two years later he became identified with the Watts Iron & Steel Syndicate, Ltd., Middlesboro, Ky., and in 1893 joined the Oliver Iron & steel Co., Pittsburgh.

About this time, the Mesaba range ores were discovered, and it was demonstrated at the Oliver works that large quantities of these fine ores could be used successfully in blast furnace operations.

When the National Steel Co., was organized in 1899, John Reis was made general manager in charge of all blast furnace operations, which then comprised 16 active stacks with three more being constructed. When the United States Steel Corp. was organized, operation of the plants of the National Steel Co. was taken over by the Carnegie Steel Co., and Mr. Reis was made general superintendent of the Shenango Valley district, which included all blast furnaces, steel works and rolling mills at New Castle and Sharon, Pa. In 1905, William Ellis Corey, then president of the Steel corporation, called him to New York with the title of assistant to the president. Mr. Reis succeeded to the vice presidency of the Steel corporation in 1911 upon the resignation of Wm. B. Dickson.

Both as assistant to the president and as vice president, all appropriations of subsidiary companies for extensions, reconstruction and building of new plants passed through Mr. Reis' hands for his investigation and recommendation. When large extensions of productive capacity were being considered in the West, finally leading to the Gary developments, Mr. Reis made a report to the president's committee covering markets, the type, character and

capacity of mills, furnaces and steelworks to be installed and the total estimated cost. This report recommended that the corporation cut loose entirely from the existing practice of driving mills, furnaces and electric power plants with steam engines, install instead gas engines for blowing blast furnaces, gas engines for generating power at central power stations and electric motors for driving all mills and auxiliaries. These recommendations were carried out with success and economy.

His five brothers also attained prominence in the iron and steel industry. William E. Reis was president of the National Steel Co., absorbed by the United States Steel Corp. in 1901. J. M. B. Reis also was active in the National Steel Co., and was in charge of the development of coal and coke properties. George L. Reis retired in May, 1920, as vice president and general manager, Minnesota Steel Co., Duluth, a subsidiary of the Steel corporation.

John Reis makes his home at Montclair, N. J. For the most part he leads a quiet family life. While his principal outdoor hobbies are golf and fishing, he is an inveterate reader and keeps himself well informed on current events. Among his friends he is known for his retentive memory. Mr. Reis is a man of quiet demeanor and equable temperament. Always sincere and straightforward, he has formed and maintained many warm friendships and has won great respect in industry for his qualities as a successful executive.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

BURT FLEEGER, formerly treasurer, sales manager and a director of Sivyer Steel Casting Co., Milwaukee, has resigned to become vice president, Oklahoma Steel Castings Co., Tulsa, Okla. Mr. Fleeger had been with the Sivyer organization since 1913. He has acquired a substantial interest in the Oklahoma company and established headquarters in Tulsa March 25.

* * *

O. L. Holcombe has been appointed Philadelphia district manager for the Clark Controller Co., Cleveland, with offices in the Atlantic building.

* * *

Edward F. Geer of New York has been elected vice president Underwood Typewriter Co., Inc., Hartford, Conn., to succeed the late Clinton L. Rossiter.

* * *

Judson Bradway has been re-elected president, Eclipse Interchangeable Counterbore Co., Detroit. Other officers are: Wesson Seyburn, vice president, and R. G. Mitchell, secretary treasurer.

* * *

Charles P. Parsons has been made general sales manager, Auto Body Co., Lansing, Mich. He served for many years with the Fisher Body Corp., Detroit, and was at one time vice president of the Ternstedt Mfg. Co., Detroit.

* * *

A. H. Ellison, formerly eastern representative, Cleveland Crane & Engineering Co., Wickliffe, O., has been appointed eastern representative of the Milwaukee Electric Crane & Mfg. Co., Milwaukee, succeeding John W. Parker, with offices at 50 Church street, New York.

* * *

C. C. Fredericks has accepted the offer of the St. Louis Pump & Equipment Co., St. Louis, to become president and general manager of the reorganized company. Mr. Fredericks was one of the founders of the company and recently was with the S. F. Bowser Co., Fort Wayne, Ind., manufacturer of oil tanks and pumps.

C. C. FREDERICKS

Sherwood Hinds has become chief engineer and vice president of the St. Louis company. He has long been active in pump equipment design.

* * *

P. E. Floyd has been appointed manager of sales in charge of the Chicago office and warehouse, Ludlum Steel Co., Watervliet, N. Y., succeeding H. W. Edwards, transferred to Southern territory with headquarters at Houston, Tex.

* * *

Milo G. Firestone, for the past 20 years secretary and treasurer of the Hill Clutch Machine & Foundry Co., Cleveland, has been elected a director of the Lorain Street Savings & Trust Co., that city, succeeding the late Philip Lehr.

* * *

H. S. Vance, formerly sales manager, Studebaker Corp., South Bend, Ind., has been appointed vice president in charge of manufacturing, succeeding M. F. Wollering, resigned. Mr. Vance has been with the Studebaker Corp. since 1910, beginning as an apprentice mechanic.

* * *

Frank H. Colladay has been appointed district sales manager, Braeburn Alloy Steel Corp., at New York. He recently resigned as New York manager of sales, Trumbull Steel Co., Warren, O. He is a member of the American Iron and Steel institute, Engineers' club and the Machinery club of New York.

* * *

Russell F. Birchard, former president, Detroit Purchasing Agents' association, and for the past 3½ years a representative of Ohio coal mining and selling interests, has formed a partnership with James C. Shelley as exclusive selling agents for Kentucky and West Virginia coals in the Detroit district. Mr. Birchard formerly was purchasing agent, Charcoal Iron

Co. of America, Detroit. When this company moved away from Detroit, he became representative there for the Maher Collieries of Cleveland.

Mr. Shelley, prior to 1923, was sales manager, Central Fuel Co., Cincinnati. Since he has been with the W. H. Warner Coal Co., at Cincinnati.

* * *

Alfred E. Gibson, for the past five years general superintendent of the Cleveland and Akron works of the Wellman-Seaver-Morgan Co. has resigned to become vice president and director, Fulton Foundry & Machine Co., Cleveland. Mr. Gibson entered the Wellman company works as a machinist apprentice, soon was made superintendent of all departments and in 1921 become general superintendent.

* * *

C. R. Rosborough, secretary and director of Williams, White & Co., Moline, Ill., has resigned to become secretary of the Moline Tool Co., that city. Mr. Rosborough was with the former company 26 years and remains a director. He is a member of the American Society of Mechanical Engineers.

* * *

G. F. Murray, for many years with Naylor & Co., New York and more recently with the foreign trade department, Rogers, Brown & Co., has become manager of the ores and metals department, Bowring & Co., that city, exporters and importers, steamship agents and ship brokers. Bowring & Co. recently entered into an agreement with Naylor, Benzon & Co., Ltd., London, to receive exclusively, offerings of European ores and metals.

* * *

R. H. Shirk, for the past six years assistant general manager of sales, Lancaster Steel Products Corp., Lancaster, Pa., will become identified with the general sales office of the Union Drawn Steel Co., Beaver Falls, Pa., April 1. Mr. Shirk began with the Lancaster works in 1910 as stenographer and has served in various capacities since.

* * *

Harlan A. Pratt has been made manager of the oil and gas engine department, Ingersoll-Rand Co., New York. Mr. Pratt for many years was with the sales department of Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and later sales manager, Atlantic Elevator Co., Inc., Philadelphia, and the Elevator Supplies Co., Hoboken, N. J. A graduate of Stevens Institute of Technology he is a former director of the American Institute of Electrical Engineers.

* * *

L. W. Cross, for the past 11 years steel buyer, Fisher Body Corp., Detroit, has resigned, effective April 1, to become Detroit district sales representative, Empire Steel Co., Cleveland. Mr. Cross is well known to the steel trade there. Permanent offices will be at 801 Stephenson building after May 1, with temporary offices at 1835 Dime Bank building.

C. A. Crusoe, director of purchases at Cleveland and St. Louis for the Fisher corporation, succeeds to the vacancy left by Mr. Cross.

Obituaries

JOHN WILLIAM FARR, for the past ten years advertising manager, McKinney Mfg. Co., Pittsburgh, maker of industrial trucks and building hardware, died at his home, Bellevue, Pa., March 26. Mr. Farr was born in Allegheny, his father, William C. Farr, being president of the McKinney company, and was educated in Avalon, Pa., schools, Bethany college and the University of Pittsburgh. His association with the McKinney company began 16 years ago, and for some time he was in charge of sales.

* * *

Randolph E. Rubner, president, Urick Foundry Co., subsidiary of the Erie Malleable Iron Co., Erie, Pa., died March 15 from injuries sustained when thrown from a horse. Mr. Rubner joined the Erie company in 1903 when a boy and retained associations with the company until his death.

* * *

Francis T. Witte, president of Francis T. Witte Hardware Co., New York, died at his home in Glen Ridge, N. J., March 16.

* * *

James W. Crosby, aged 64, died in the Braddock, Pa., general hospital March 22. Since 1875 he had resided in Braddock township and retired as superintendent of the splice bar department, Edgar Thomson steel works of Carnegie Steel Co., two years ago.

* * *

Herman Steinruck, 47, treasurer and general manager, Stirling Aluminum Co., Erie, Pa., died suddenly at his home there March 24.

* * *

Herbert W. Cheney, prominent electrical engineer of Milwaukee, died March 23, aged 54 years. Mr. Cheney was a graduate of the University of Michigan and joined the Allis-Chalmers Mfg. Co. in 1904.

* * *

James O. Barrett, president Barrett Machine Tool Co., Meadville, Pa., died suddenly at his home there March 19. Mr. Barrett came to Meadville in 1883, and with his brothers, Charles and William, established the Barrett Vise & Tool Co., manufacturing boring machines of his own design. In 1906, with his two sons, Frank N. and George W., he took over the entire company.

* * *

Hugh R. McGregor, since 1871 mechanical superintendent Brown & Sharpe Mfg. Co., Providence, R. I., machine tool builder, died recently at his home in Edgewood. Under his supervision much progress was made in development of the present line of machine tools and accessories. He contributed many milling machine improvements. Mr. McGregor had been with Brown & Sharpe company for 44 years. He was born in Brookville, Nova Scotia, 1859, his first connection being with the Providence Tool Co.

* * *

M. Robert Pinot, vice president and delegate of the directing council, Comite des Forges de France, died suddenly Feb. 24. Mr. Pinot also was general delegate of the union of mining and metallurgical industries of France. He was well known in international iron and steel circles and often represented French interests in negotiations between iron and steel producing countries. Apart from his official positions at the Comite des Forges he devoted a large share of his time to the several organizations formed by the Comite des Forges for the welfare of iron and steel workers. Mr. Pinot graduated from the Ecole des Mines and also received a degree in law. He served for 27 years with the Comite des Forges and was also a member of the board of directors, Bureau International du Travail, and vice president of the French National Economic council.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

STATE LINE GENERATING CO., recently incorporated in Indiana will make an immediate start on a 200,000-kilowatt power station on Lake Michigan at the Indiana-Illinois boundary. The initial expenditure is estimated at $25,000,000. A plant ultimately generating 1,000,000 kilowatts and promising to be the largest steam generating plant in existence is contemplated. The State Line company will be a producing interest only. Its directors are affiliated with the Commonwealth Edison Co. and Public Service Co. of Northern Illinois, and Samuel Insull, 72 West Adams street, is chairman of the board. Six miles of 132,000-volt underground cable has been ordered, to tie in with the power lines in the district. The site of the new station is in the Calumet district, not far from the South Chicago plant of the Illinois Steel Co. and the Indiana Harbor plants of the Youngstown Sheet & Tube Co. and Inland Steel Co.

* * *

MCWAYNE CAST IRON PIPE CO., Birmingham, Ala., manufacturer of pressure pipe, is building an addition to its foundry, covering 8800 square feet. Nashville Bridge Co. is erecting the building.

* * *

SHARON STEEL HOOP CO., Sharon, Pa., has re-elected Severn P. Ker president, H. T. Gilbert, T. P. Draper and L. W. Smith vice presidents and J. Reid Evans secretary and treasurer.

* * *

SEA SLED CO. of Mystic, Conn., has leased part of the Groton Iron Works plant, Noank, Conn., and opened it as a branch in February. A new type of sea sled somewhat smaller than the regular model will be constructed and a contract has been signed for 300 Buda motors.

* * *

AMERICAN FOUNDRY & EQUIPMENT CO. has consolidated its plants and organization at Mishawaka, Ind., moving plants from York, Pa., and Chicago to the former No. 4 plant of the Dodge Mfg Co., at Wishawaka, which it has purchased. This plant formerly was devoted by Dodge Mfg. Co. to the manufacture of heavy oil engines, which was discontinued some time ago, rendering the plant superflous. Sale of this plant has no bearing on the operations of the Dodge Mfg. Co. The new owner has re-equipped it for production of its line of foundry equipment and supplies.

* * *

CLEVELAND CLIFFS IRON CO. has elected E. B. Greene, son-in-law of the late J. H. Wade, and vice president of the Cleveland Trust Co., and Garretson Wade, son of J. H. Wade, to the board of directors, succeeding J. H. Wade and C. G. Heer. Officers of the company were re-elected, as follows: W. G. Mather president, M. M. Duncan vice president, S. L. Mather secretary, C. C. Heer treasurer and C. D. Mason auditor.

* * *

THE MASON MACHINE WORKS, Taunton, Mass., manufacturer of textile machinery, will be sold shortly to a syndicate of Chicago business men, according to Albert R. White of the Mason Machine Works. Plans for future operation of the plant as well as the names of the purchasers are withheld.

* * *

STEEL coal mixing bins are being installed over the by-product coke ovens at the Zenith Furnace Co., West Duluth, Minn., replacing the wooden structure which was damaged by fire recently. New coal handling equipment, including screens, also is being put in. The structural material required will be provided by the Worden-Allen Co.

* * *

JOHN SIMMONS CO., 110 Center street, New York city, dealer in tools and heating and plumbing supplies, has added a new unit in its warehouse in Long Island city. The building is six stories high with 80,000 square feet floor space. It is equipped with three electric traveling cranes, 50-foot span each. Y. M. Karekin, 136 Liberty street, New York city, was consulting engineer in charge.

* * *

PRATT & WHITNEY AIRCRAFT CO., Hartford, Conn., has completed its first nine-cylinder air-cooled radial engine of 400 horsepower, and has successfully passed the navy tests The finished product weighs about 500 pounds less than the Liberty engine and embodies many new and radical features. Design and construction were completed in six months.

* * *

EXPENDITURE of more than $1,150,000 for increased power facilities in Butler, Pa. and vicinity is to be made by the West Penn Power Co., according to Superintendent John L. Bennett of the company's Butler district. Work has begun on a high tension sub-station to be built on a hill above Kittanning road, half a mile northeast of the present Butler power house, and on connecting the Butler unit to the West Penn super-power transmission system. Hooking up Butler to the higher power line follows a contract with the Forged Steel Wheel Co., now the Columbia Steel Co., to furnish power for its motors, the aggregate capacity of which is about 20,000 horsepower.

* * *

WILLIAM HAMILTON CO., Peterborough, Ont., has been reorganized with a Dominion charter, new directors and a bond issue which was privately subscribed. Manufacture of engines, pumps, hydraulic turbine machinery and specialties will be continued and additional lines undertaken. P. P. Westbye is president, L. Dunlop Palmer first vice president, M. V. Sauer second vice president and Theo. J. Kipp director.

* * *

GLOBE SEAMLESS TUBES CO., Milwaukee, has completed installation of much new equipment in its plant and is considering plans for adding machinery to increase its output further. Canadian Pacific railroad has just closed a contract with this company for a large tonnage of boiler tubes. Shipments to Puget Sound and Mare Island navy yards for government vessels have just been made.

* * *

INDIANA TRUCK CORP., Marion, Ind., is working on a large expansion program. The following were elected directors: J. W. Stephenson, John A. Rhue, E. A. Kightlinger, Homer K. York, Oscar S. Thompson, Robert J. Spencer Sr., and H. H. Davidson. The following were elected officers: J. W. Stephenson, president; E. A. Kightlinger, vice president; Homer K. York, vice president; John A. Rhue, treasurer, and Glen Whisler, secretary.

British Production Gain Is Surprise

(*Concluded from Page* 897)

for steel of various kinds and contracts for rolling stock follow one another in a satisfactory way. Builders of railway vehicles in the Midlands are all well engaged.

Steadiness of prices is on the whole, encouraging. Pig iron business leaves a good deal to be desired. Middlesbrough, following the spurt of a month ago, seems to be more than able to meet all current demands for iron. It is rather remarkable that £3 10s ($17.01) for No. 3 has been maintained, but there are complaints that Midland manufacturers are capturing some of the Scotch business. If this continues the figure will hardly be maintained. The decision a short time ago to charge 6d extra ($0.12) to foreign buyers of pig iron was at the time considered rather rash; but furnacemen considered themselves bound to give preference to home pressure for material. They now complain loudly that not only has foreign pig iron buying fallen off, exports this month comparing very unfavorably with those of January, but that foreign pig iron is more competitive on the Tees, where increased shipments have lately been received. It is quite possible that removal of the labor menace would correct these disquieting relations of imports and exports.

The continental relation to this country is changing a litttle, although it is doubtful whether the change will be beneficial. Foreign steelmakers are not cultivating the supply of semifinished material to the extent they were, and several inquiries for billets etc. have been turned down because Belgian and French makers were not prepared to accept British offers to buy billets below £5 7s 6d ($26.12). Important Belgian exporters quote substantially higher rates. The result has been to divert much demand for semifinished steel to British makers willing to sell at £6 ($29.16). With adequate tonnages ordered, British mills, undoubtedly, could take still lower prices.

Foreigners are concentrating on finished steel offering decidedly low prices, and able to give the British buyer an advantage of £1 ($4.86) and upwards on nearly all products. Joists for example, can be bought at £5 ($24.30) f. o. b. Antwerp and Germans are quoting still lower figures. This undersells British joists and angles by about £1 ($4.86) per ton delivered. Large quantities of foreign finished material are being received, although this is commonly said to be mainly in fulfillment of contracts made some time ago. There are signs that Germany will be a more formidable competitor this year than in 1925.

French Iron Production at Record

PARIS, March 19.—(*European Staff Service*)—Pig iron production has reached the highest point attained in France since the end of the war. At present 149 furnaces are blowing, or 15 more than in February, 1925. The low price of pig iron has facilitated exports and shipments to foreign destinations are heavy. Although the price of phosphorus pig iron has increased about 33 1/3 per cent since the beginning of 1925 the franc has depreciated nearly 50 per cent. Thus present quotations are more attractive in terms of gold than they were a year ago. The domestic price of Lorraine chill cast No. 3 foundry (2.50 to 3.00 per cent silicon) has been fixed at 407.50 francs ($15.28) for March.

Deliveries of coke to France by Germany on reparations account are being made regularly. Receipts average slightly over 9000 tons daily. This coke costs French furnaces 169.25 francs ($6.35) per metric ton.

Franc—$0.0375

Conditions in semifinished steel remain unchanged. Demand for blooms for export is active. Sales have been recorded as low as £4 1s ($19.65) per metric ton f.o.b. Antwerp. Basic bessemer billets range from £4 7s 6d to £4 8s ($21.25 to $21.35). Steel production now reaches nearly 700,000 tons per month.

Inquiries for finished steel products are heavy but few result in orders. Prices are firm. No important transactions have been recorded. On export business keen competition is being encountered from Germany. In view of the unsettled political and financial conditions now prevailing, buyers are limiting purchases to immediate requirements. The recent fall of the French ministry has not helped to establish confidence. Until a new government has been formed and legislation now pending concerning fiscal measures is voted the outlook for any improvement in market conditions is not encouraging.

Continental iron and steel manufacturers are attempting to organize export markets. Rails is the first product claiming the attention of European metallurgists. Steps have been taken to reorganize the international rail syndicate. If an agreement can be reached on rails, other products will be up in order of their importance.

German Steel Has Hard Road

BERLIN, March 18.—(*European Staff Service*)—German export business has been fairly active, especially as prompt delivery of the German works gives them considerable advantage compared with their foreign competitors. Fair sales of bars have been effected at £5 7s ($26) f.o.b. Northern sea ports. Japan and England have bought tonnages of plates at low prices. Wire rods have been sold at £5 15s ($28). Especially worth mentioning is the credit of 30,000,000 marks ($7,175,000) which Otto Wolff is reported to have granted to Russia and which in the first place will be used for the buying of pipes and sheets. Exports of pipe have been satisfactory.

German exports in January heavily exceeded the monthly average of the two preceding years, although they show a small loss in comparison with those of last December. Imports in January again sharply declined as the imports from France, Belgium, and the Saar decreased. The following table shows German import and export figures for iron and steel in metric tons:

	Imports	Exports
Monthly average, 1924	133,664	174,923
Monthly average, 1925	168,654	312,786
1925		
January	260,559	304,492
October	100,408	358,831
November	94,124	321,694
December	87,509	399,520
1926		
January	67,597	391,172

Exports of bars declined from 68,531 tons in December to 62,335 tons in January, while beams decreased from 10,896 tons to 9347 tons. Bands showed a small advance to 10.609 tons and medium sheets to 10,752 tons. Plates decreased to 17,192 tons and thin sheets to 6339 tons. Pig iron exports again increased from 22,360 tons to 28,172 tons, of which 14,563 tons were shipped to the United States.

Business on the domestic market is quiet as the anticipated revival in the building trade has not yet occurred and as consumers continue to be hampered by shortage of money. A fair improvement is expected from the 100,000,000 marks which the railroads are to spend for repairs and reconstruction. Of all the orders for wire rods booked by the works during the last six months, which totaled 197,252 tons, only 82,527 tons were sold at home, whereas 114,725 tons were exported.

The situation in pig iron continues dull and stocks at works have accumulated. The Polish Friedenshuette is now producing ferromanganese and is in keen competition with the new selling syndicate composed of German, Norwegian and English producers.

The publication of the annual report of Krupps for the year ending Sept. 30, 1925, showed a loss of 15,293,772 marks ($3,630,000). This loss is partly a consequence of the fact that German costs of production generally have been above the world level. Furthermore, domestic sales have been handicapped by the shortage of capital, while foreign trade has been hampered by high prices.

March Stock Sales

Generally Exceed February—Better Weather Aids Increasing Demand

MARCH sales of iron and steel products from warehouses generally totaled better than February. In many cases the daily average was higher. Better weather is increasing buying of building materials. Prices are steady.

Jobbing demand in the New York Metropolitan district has slowed up over the past week. March will show a substantial gain over February. Prices continue unchanged, with black and galvanized sheets firmer. It would be difficult now for a consumer to do better than 5.65c on galvanized and 4.50c on black. Reinforcing bars of late have been moving slowly, but are expected to become more active as the building season gets under full swing.

Buffalo users of iron and steel warehouse materials are buying in small quantities. Orders are numerous and March volume of business promises to be slightly in excess of the same month of 1925. Sheets, small bars and shapes, and to some extent plates are moving fairly well. Prices are unchanged.

Lack of favorable weather has retarded building operations and as a result the movement of reinforcing bars and structurals at Cincinnati was of small consequence the past week. Orders for other warehouse products were scattered. Sheet prices show signs of strengthening, while quotations on the other products are unchanged.

Cleveland warehousemen report spotty business. Some are booking more tonnage than at the February rate while others are comparatively quiet. Prices are steadier, shading being more confined to customary concessions on good tonnages. The bulk of current business is going at the list prices.

With the opening of the building season, the call for construction materials has shown decided expansion at St. Louis. The past ten days have been featured also by increased sales of wire fencing and wire netting. Prices are steady at quoted prices.

A slackening tendency in the demand for iron and steel warehouse products is noted at Detroit. Rumors current in the automobile industry that sales are not as good as were expected appear to be having a dampening effect. Operators report that orders have shown some increase in numbers and the aggregate tonnage being moved is fairly good.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.15c
Ft. Worth	3.90c
Los Angeles	3.20c
New York	3.24c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
Ft. Worth	3.90c
New York	3.24c
Philadelphia	2.90c to 3.20c
St. Louis	3.25c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c
Cincinnati	3.30c
Cleveland	2.40c to 3.10c
Detroit	3.15c
Ft. Worth	3.75c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	3.00c to 3.25c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c
Youngstown	2.50c to 2.60c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.25c
Ft. Worth	4.50c
Los Angeles	3.20c
New York	3.34c
Philadelphia	2.70c to 3.05c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleveland, 3/16-inch	3.225c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Ft. Worth	4.50c
Los Angeles	3.20c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.70c to 3.05c
Philadelphia, 3/16-inch	2.85c to 3.20c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.25c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	3.75c
New York	3.89c
Portland	4.25c
Philadelphia	3.50c
San Francisco	3.75c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	5.25c
Buffalo	4.60c
Chicago	4.10c
Cincinnati	4.55c
Cleveland	4.10c
Detroit	4.25c
Los Angeles	4.75c
New York	4.50c
Philadelphia	4.65c
Portland	5.25c
San Francisco	4.75c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.35c
Ft. Worth	5.50c

NO. 28 GALVANIZED SHEETS

Boston	6.25c
Buffalo	5.90c
Chicago	5.25c
Cincinnati	5.65c
Cleveland	5.25c
Detroit	5.50c
Ft. Worth	6.25c
Los Angeles (corr. 28 ga.)	6.00c
New York	5.65c
Philadelphia	5.85c
Portland	6.25c
San Francisco	6.00c
Seattle	6.50c
St. Louis	5.70c
St. Paul	5.60c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.80c
Ft. Worth	4.65c
Los Angeles	4.05c
New York	3.99c
Philadelphia	3.75c to 3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.65c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c to 4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.90c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.30c
Buffalo	6.35c
Chicago	6.25c
Cincinnati	7.15c
Cleveland, over 500 lb. lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.25c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL

New York duty paid

Swedish, hollow drill steel	15.00c
Swedish iron bars, round	6.75c
Flats and squares	7.00c

WELDED PIPE

Discounts from warehouse, New York City Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—28	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6-inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 6
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

Where additional information is presented, reference is made to date of issue in which previous item appeared.

EL DORADO, ARK.—Henderson Co. has announced plans for a combination-type gasoline plant in the Lisbon oil field with daily capacity of 5000 to 10,000 gallons. From 15 to 20 miles of pipelines will be laid. J. O. Huffman, First National Bank building, is general superintendent.

LOS ANGELES—Gaffers & Sattler, manufacturers of gas stoves, will build an addition to their plant in the central manufacturing district to triple floor area.

LOS ANGELES—American Can Co. is having plans made for a large addition to its plant on Santa Fe avenue to double present production. Raymond W. Phelps is manager of the plant.

STOCKTON, CALIF.—Frazier & Co., sheet metal manufacturing, has given contract to H. H. Henning, 1751 Berkeley avenue, for a 1-story addition.

BRIDGEPORT, CONN.—Bead Chain Mfg. Co., State street, will build a 2-story addition 60 x 120 feet.

BRIDGEPORT, CONN.—Housatonic Machine & Tool Co., 19 Staples street, will build a 1-story addition, 40 x 51 feet.

ROME, GA.—Standard Stove & Range Co. has been incorporated with $8000 capital and will build a foundry on the Alabama road.

BLOOMINGTON, ILL.—Williams Oil-O-Matic Heat Corp., 207 West Washington street, C. W. Williams manager, has let contract to the Austin Co., 160 North LaSalle street, for a factory building 150 x 300 feet, one story.

CHICAGO—U. S. Radiator Co., 500 North Dearborn street, H. Booth manager, will build a 1-story addition, 45 x 125 feet.

CHICAGO—Chicago Automatic Conveyor Co., 37 West Van Buren street, is considering plant to be built at Oakley avenue and Seventy-fourth street.

CHICAGO—U. S. Bottlers Machinery Co., A. I. Risser president, 4015 Rockwell street, will build a plant addition, two stories, 76 x 116 feet.

CHICAGO—Lock Joint Pipe Co., Ampere, N. J., has obtained a site in the Clearing industrial district at Chicago and will built a plant for production of its regular line of water and sewer pipe.

CHICAGO—Hi-Test Bronze Die Casting Co., 326 West Madison strret, has been incorporated with $100,000 capital to manufacture castings and specialties by Oscar Wahlgren, W. A. Murphy, Duane Reed. Reginald C. Darlet, 64 West Randolph street, is correspondent.

CHICAGO—Metal Cutting Machinery Co., 130 South Clinton street, has been incorporated with $1000 capital to manufacture metal cutting and antifriction band saw machinery by George R. Bird, Clarence A. Fee and Emil W. Schmultz. Briggs & Schmultz, 105 West Monroe street, are correspondents.

CHICAGO—Peterson Machine Co. Inc., 31 North Rockwell street, has been incorporated with $20,000 capital to manufacture machines, metal appliances and specialties by Russel F. Peterson, Kathryn Lamb and Minnie B. Albright. Louis C. Horner, 111 West Washington street, is correspondent.

MOLINE, ILL.—Strombeck Becker Mfg. Co., 285 Fifty-first street, J. F. Strombeck president, has let contract to Axel Carlson Co., 405 Peoples Bank building, for a 4-story addition 60 x 80 feet.

MOLINE, ILL.—Triplex Grinder Co., 418 Sixteenth street, has been incorporated with $25,000 capital to manufacture valve-grinding machinery and valve-seating cutters by O. R. Seibert, Cecil Huyvaert and Bert Williams. Wood, McNeal & Warner, 503 State Trust building, are correspondents.

PEORIA, ILL.—National Aluminum Mfg. Co., 107 Main street, has been incorporated with $25,000 capital to manufacture brass, aluminum and metal cooking utensils and castings by Joseph M. Liebig, Leo F. Cavanaugh and John F. Kelley. Weil, Bartley & Weil, 907 Jefferson building, are correspondents.

SPRINGFIELD, ILL.—Armstrong Auto Parts Co. is having plans made for rebuilding the burned portion of its plant and for new equipment.

WAUKEGAN, ILL.—Waukegan Foundry Co. has bought a site at Commonwealth avenue and twenty-second street and will build a foundry 85 x 250 feet, starting building April 15. A. K. Barr is president. (Noted Feb. 4.)

INDIANAPOLIS, IND.—National Cab & Truck Co. has been incorporated to manufacture trucks and cabs by Louis H. Riggs, Hazel M. Neidlinger and George S. Scott.

INDIANAPOLIS, IND.—Garsix Mfg. Co. has been incorporated with $50,000 capital to manufacture pistons and piston rings by George D. Gardner, Laurans L. Henderson and Nancy Lee Gardner.

MUNCIE, IND.—Warner Gear Co. has plans in preparation for two additions to its plant.

SOUTH BEND, IND.—Studebaker Corp., A. J. Rumpf secretary, has let contract to Ralph Sollitt & Sons, 518 East Sample street, for a 4-story addition 80 x 193 feet.

DAVENPORT, IOWA—Blackhawk Foundry Co. has awarded a contract to Owens & Bivens for construction of an addition 70 x 90 feet, two stories, to double its capacity. (Noted March 4).

NEW ORLEANS—Crescent Steel Construc-

Exports of Machinery in February

IN NUMBER UNLESS OTHERWISE DESIGNATED

	February		Eight months ended February	
	1926	1925	1926	1925
Power driven metalworking machinery, value	$976,431	$1,007,084	$11,255,567	$8,281,261
Lathes	.....	85	771*	1,666
Boring and drilling machine tools	.....	109	984*	1,574
Planers, shapers and slotters	.....	21	126*	183
Bending and power presses	.....	15	252*	255
Gear cutting machines	.....	43	138*	263
Milling machines	.....	31	528*	371
Punching and shearing machines	.....	20	105*	115
Power hammers	.....	30	111*	153
Other metalworking machinery and parts, lbs.	.....	1,117,665	8,674,263*	.....
Engine lathes	18	.....	76†	.....
Turret lathes	17	.....	20†	.....
Other lathes	50	.....	133†	.....
Vertical boring mills and chucking machines	8	.....	17†	.....
Thread cutting and automatic screw machines	41	41	565	536
Knee and column type milling machines	6	.....	11†	.....
Other milling machines	36	.....	81†	.....
Disk type gear cutters	.....	.....	1†	.....
Other gear cutting machines	17	.....	110†	.....
Vertical drilling machines	30	.....	50†	.....
Radial drilling machines	5	.....	7†	.....
Sensitive drilling, machines	65	.....	123†	.....
Other drilling machines	74	.....	149†	.....
Shapers and slotters	14	.....	283†	.....
Planers	2	.....	4†	.....
External cylindrical grinding machines	171	82	644	1,352
Internal grinding machines	29	10	250	139
Metalworking tool sharpening machines	58	.....	105†	.....
Other metal grinding machines, pounds	47,230	98,996	752,266	923,076
Sheet metalworking machines, pounds	334,128	.....	598,113†	.....
Plate metalowrking machines, pounds	1,738	.....	33,082†	.....
Rod or wire working machines, pounds	2,438	.....	22,876†	.....
Forging machinery, pounds	417,677	.....	813,271†	.....
Rolling mill machinery, pounds	197,665	.....	665,909†	.....
Other power driven metalworking machinery and parts, pounds	564,247	.....	1,382,576†	.....
Chucks for machine tools	2,600	1,338	15,155	11,486
Reamers, cutters, drills, taps, dies, etc, pounds	140,095	253,365	2,169,299	1,345,619
Air compressors:				
Capacity up to 25 cubic feet	440	285	3,289	‡555
Capacity over 25 cubic feet	153	232	1,863	‡388
Cranes with swinging booms	9	11	63	41
Other cranes	5	10	138	123
Chains:				
Sprocket and other power transmission, lbs.	395,925	113,755	2,450,130	2,404,306
Other chains, pounds	816,731	647,737	7,909,250	6,061,159

*July 1 to Dec. 31, 1925 †Beginning Jan. 1, 1926. ‡Beginning Jan. 1, 1925.

tion Co., Inc., has been incorporated with $50,000 capital by O. M. Barnes, 839 North Rampart street and associates.

NEW ORLEANS, LA.—Texas & Pacific railroad plans engine terminals and repair shops at Gouldsboro, La., to cost about $1,500,000. E. F. Mitchell, Texas & Pacific building, Dallas, Texas, is chief engineer.

PLAQUEMINE, LA.—Nadler Foundry & Machine Co., Inc., has been incorporated with $100,000 capital by Carl S. Nadler, president, and Joseph Allen, secretary.

SHREVEPORT, LA.—Louisiana Oil & Refining Corp, is adding two high pressure cracking still units to its Bossier City refinery. Other improvements are contemplated. J. J. McConnell is chief engineer.

SHREVEPORT, LA.—Louisiana Railroad & Navigation Co. plans 20 miles of new trackage in south Louisiana and will erect a large steel bridge across the Atchafalaya river at Simmsport. C. R. Mee is chief engineer.

DODGE CITY, KANS.—Angell Disk Plow Co., 1311 Seventh avenue, George Fowler manager, is having sketches made for a plant.

EUREKA, KANS.—Newton Process Co. has contract for installation of absorption type gasoline plant at Cassaday, Kan., for Manhattan Oil Co.

WICHITA, KAN.—Barnsdall Corp., new owners of Waite Phillips Co. refinery, contemplate improvements at plant including cracking stills, contact filtering system, etc. C. E. Good, Petroleum building, Tulsa, Okla., is purchasing agent.

BALTIMORE, MD.—Maryland Bibb Mfg. Corp., 2801 Waldorf avenue, has been incorporated with $100,000 capital by Louis B. Lieberman and associates.

BALTIMORE—Murrill & Keiser Employes Co., 206 North Holliday street, has been incorporated to manufacture machinery parts by William G. Thumm and Oscar R. Jackson.

FRAMINGHAM, MASS.—Gurney Heater Mfg. Co., 96 Arlington street, will build an addition and a craneway, from plans by Lockwood, Greene & Co., 24 Federal street, Boston.

QUINCY, MASS.—Norfolk Iron Co., 33 Newport avenue, will build a 1-story addition.

WORCESTER, MASS.—Economic Machinery Co., Arthur F. Blanchard, Boston, president, has completed reorganization and will extend its facilities for production.

BENTON HARBOR, MICH.—American Machine Tool Co. has been incorporated with $10,000 capital by Glen Overton, president, and others.

BUFFALO—Gas Heat Generator Corp. has been incorporated with 3000 shares at $100

Industrial Business Changes

STUDEBAKER Corp., South Bend, Ind., A. R. Erskine president, will remove its purchasing and engineering departments now at Detroit to the home offices at South Bend, concentrating all executive departments at that place. Manufacturing plants at Detroit, will continue under charge of local managers.

* * *

Dominion Tool & Forgings Ltd., Montreal, Que., has established a branch plant at Sherbrooke, Que. Its product is small tools.

* * *

The Pittsburgh Insulating Co. is removing its office from 96 Forty-third street, Pittsburgh, to Fourth avenue and Locust street, Coraopolis, Pa., its plant location.

* * *

West Virginia Coal & Coke Co., Fairmount, W. Va., William M. Wilshire president, will remove its main offices to Cincinnati, shortly.

* * *

Holly Machine Tool Co., Holly, Mich., manufacturer of tools, dies, jigs and special machinery, has been reorganized by T. L. Dilley and Earl Padgett.

* * *

Waterbury Fastener Co., Waterbury, Conn., whose plant was burned recently, has bought a 2-story factory building from the Chase Companies Inc., which will be equipped for its use.

* * *

Western Electric Co., 195 Broadway, N. Y., will discontinue production shortly at its plant on Frelinghuysen avenue, Newark, N. J., and move its equipment to its new works at Kearney, N. J.

* * *

Waterloo Gasoline Engine Co., Waterloo, Iowa, has changed its name to John Deere Tractor Co., effective April 1. There is no change in ownership, management or officers.

* * *

Standard Scale & Supply Co., Pittsburgh,, road building and contracting machinery, has leased a 3-story building at 1840 South Michigan boulevard, Chicago, for its warehouse and sales offices.

* * *

Wallace Mfg. Co., Sussex, N. B., a merger of the Sussex Mfg. Co. and Wallace Machine Works, W. H. Wallace president, will resume operations at the plant of the Sussex Mfg. Co., which has been shut down several months.

* * *

Sota & Azner, Spanish iron ore interests, have appointed Deveboise-Anderson Co. Inc., New York, selling agents in the United States, in place of the late Victor de Ysasi, formerly representative in this country.

* * *

Donald Sales & Mfg. Co., Milwaukee, manufacturer of foundry equipment and supplies, has moved from 232 South Water street to 265 South Water street where larger quarters are available. H. R. Donald is president and treasurer, A. J. Donald vice president and C. F. Auchter secretary.

* * *

Rolls-Royce of America Inc., Springfield, Mass., has taken over the automobile lamp equipment and organization of the Elliott Mfg. & Plating Co., Springfield, and moved them to its plant at East Springfield, where all lamps for its cars will be produced.

* * *

Ohio Injector Co., Wadsworth, O., manufacturer of valves and oil field specialties, has opened sales offices in Tulsa, Okla., and Fort Worth, Tex., in charge of V. H. Morgenstern and C. H. Brown, respectively. Both formerly were with the Continental Supply Co., St. Louis.

* * *

Scovill Mfg. Co., Waterbury, Conn., has bought the Gilchrist Co., Newark, N. J., manufacturers of fixtures and equipment for druggist and soda fountain trade. Operations will be continued at the Newark plant under the direction of officers and directors elected from the Scovill organization.

* * *

Vixen Tool Co., 879 Mount Prospect avenue, Newark, N. J., manufacturer of files and rasps, Paul E. Heller president, will remove its manufacturing business shortly to Newcomerstown, O., where a small plant has been operated for some time. Capacity of the plant will be enlarged by addition of another building.

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	11.00 to 12.00
Algerian low phosphorus, 52 to 54 per cent	10.00 to 10.50
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.50
Algerian foundry and basic, 50 to 54 per cent	9.25 to 9.75

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent.....nominal
Indian minimum 47 per cent.....nominal
Caucasian, 53 to 55 per cent.....
Washed, 42 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton..	$17.50
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.25

each and 6000 common no par value by E. D. Hallock, J. J. Hanavan and E. M. Munger. Swift & Potter, Buffalo, are attorneys.

NEW YORK—Venetian Art Metal Lamp Co., Inc., 381 Broome street, recently incorporated to manufacture lamps and novelties, will have its castings made by contract.

NEW YORK—Manhattan Aluminum Products Co. has been incorporated with $10,000 capital by B. Jaye, J. Bikales and S. Granick. W. Sheinberg, 1 Madison avenue, is attorney.

NEW YORK—Transcontinental Metal Corp. has been incorporated with $10,000 capital by G. Bankoff, J. Levenson and R. Wolf. J. F. Frees, 3029 Third avenue, is attorney.

NEW YORK—Duro Mfg. Co. has been incorporated with $50,000 capital to manufacture hangers by J. Stenglein and E. Broderick. S. Herzog, 116 Nasau street, is attorney.

NEW YORK—Artolite Stanton Lamp Mfg. Co. has been incorporated with $20,000 capital by J. Schaffer, M. Roller and S. Geltner. H. M. Frank, 302 Broadway, is attorney.

NEW YORK—Premier Brass & Electrical Supply Co. has been incorporated with $100,000 capital by W. G. Meisel and S. M. Meisel. H. W. Burmaster, Albany, is attorney.

NEW YORK—United Metal Stamping Corp. has been incorporated with $10,000 capital by J. Tisberg, H. I. Tisberg and I. Knobe. S. Mandelbaum, 277 Broadway, is attorney.

NEW YORK—Tourad Co. has been incorporated with 100 shares at $100 each and 100 common no par value to manufacture machinery by J. Heller, L. Lifton and H. Korn. J. J. Taschof, 32 Broadway, is attorney.

OSWEGO, N. Y.—Otis-Sawyer Foundry & Machine Co., East Ninth street, has let contract to Peter Raby Construction Co. for a 1-story machine shop and foundry, 66 x 160 feet and 30 x 60 feet.

DURHAM, N. C.—Bennett & Lassiter Co. has been incorporated with $15,000 capital to operate a machine shop, by J. M. Lassiter, Chapel Hill road.

GREENSBORO, N. C.—Monarch Machine & Mfg. Co. has been incorporated with $100,000 capital by C. H. Lewis, A. R. Lewis and E. J. Lewis and has bought the plant and machinery of the Westbrook Elevator Co., 531 South Eugene street. Cook-Lewis Foundry Co. is large stockholder in the new company.

STONEVILLE, N. C.—Garden King Tractor Co. has been incorporated with $500,000 capital by George L. Mazer and Robert B. Price to manufacture farm implements.

AKRON, O.—A. Schrader's Sons Inc. of Ohio has given contract to Turner Construction Co. for manufacturing plant for manufacture of automobile tire valves, five stories, 52 x 200 feet.

CINCINNATI—Queen City Steel Treating Co., E. P. Stenger, president, is building an addition to double its capacity.

CINCINNATI—Formica Insulation Co. has let contract to Ferro Concrete Construction Co. for 2-story plant 80 x 100 feet, with foundations for five stories.

COLUMBUS, O.—Valve Equipment Co. has been incorporated with $50,000 capital by Allison R. Jones, H. Edward Clary, George H. Lowden and Harry B. Redding.

DAYTON, O.—Unit-Steel Corp., 707 Mutual Home building, has been incorporated with 40,000 shares no par value to specialize in unit steel production.

TOLEDO, O.—Electric Auto Lite Co., C. O. Miniger president, Champlain street, has let general contract to A. Bentley & Sons, 201 Belmont avenue, for 4-story addition, 100 x 120 feet.

BLACKWELL, OKLA.—Acme Foundry & Machine Co., capital $40,000, incorporated by M. D. Mitchell, Independence, Kan., E. L. Graham, Coffeyville, Kans., and Don De Geer, Blackwell.

ENID, OKLA.—Champlin Refining Co., which recently purchased Windsor Oil & Gas Co. properties in eastern Oklahoma, contemplate construction of pipe lines to eventually connect with Enid refinery. R. A. Champlin, First National Bank building, is vice president and purchasing agent.

OKLAHOMA CITY, OKLA.—Automatic Lubricating Oil Equipment Co., capital $50,000, chartered by W. Y. Tennyson, Salina, Okla., W. H. Peaden, Dallas, Tex., and A. C. Neel, Norman, Okla., to manufacture and distribute lubricating oil systems.

PICHER, OKLA.—Canadian Mining & Development Co., capital $25,000, incorporated by J. R. Cole Jr., Cole building, Tulsa, J. R. Cold third, Baxter Springs, Kans., and Jack Ott, Miami, Okla., to engage in lead and zinc mining operations.

TULSA, OKLA.—Clark Bros. Co. has contract for five 165-horsepower direct-driven engine compressors for Amerada Petroleum Corp. gasoline plant at Graham, Okla.

TULSA, OKLA.—Tulsa Brass Castings Co., 1032 East Independence street, has increased capital from $6000 to $9000. B. F. Lawrence is general manager.

TULSA, OKLA.—Tulsa Pipe & Supply Co., Harry Stekoll, general manager, has established a branch warehouse at Panhandle, Texas, to handle oil field supplies.

TULSA, OKLA.—Goodyear Pipe Co., capital

Manganese Ore Shipments Increase 72 Per Cent

Washington, March 30.—According to preliminary figures compiled by the bureau of mines for 1925, the domestic shipments of manganese ore containing 35 per cent and more of metallic manganese totalled approximately 97,500 tons, valued at $1,853,000. This is an increase of 72 per cent in shipments over 1924. The tonnage produced in 1924 was 56,515, valued at $1,307,477. The difference in value of the two years as given is due to the fact that the ratio of the production of chemical ore to that of metallurgical ore decreased, while the production of chemical ore remained relatively constant for the two years.

In 1925, the Butte, Mont., district shipped 47,856 tons of manganese ore. Large increases were made in shipments of high-grade manganese ore from Montana and Virginia with smaller increases from Washington, New Mexico and Georgia. The most notable decrease for the year was that which occurred in Colorado. After May, 1925, only one company was active in the Leadville, Colo., district and its production was manganese ore and manganiferous ores.

During the first 11 months of 1925, the metallic manganese content of the manganese ore imported amounted to 242,009 tons. For the first 11 months the manganese content of the imports of ferromanganese and other alloys exclusive of spiegeleisen was given as 68,164 tons. Assuming an average of manganese content of 48 per cent for all ores imported, the gross weight of ore imported, including that of Cuba, during this period was approximately 512,000 tons. If the imports in December were equivalent to those in November then the total would be about 582,000 tons as compared with 505,000 tons in 1924.

$12,000, incorporated by Abe Krasne, 112 South Boston street, Isidore Krasne and George Woolridge to deal in second-hand pipe and material.

TULSA, OKLA.—National Tank Co., Jay P. Walker, president, has acquired site 220 x 400 feet and will erect plant for manufacture of wooden and steel tanks. Temporary office at Albany hotel.

TULSA, OKLA.—Palmer Specialty Co. has been reorganized to deal in oil field equipment by B. F. Palmer, 103 Tuloma building, F. S. Stryker and J. H. Kountz. Capital $25,000.

TULSA, OKLA.—Ranney-Wilson Rig Building Co. plans erection of plant for manufacture of wooden and steel rigs for oil field use. C. E. Ranney, 1831 South Carson street, is president and general manager.

TULSA, OKLA.—Sheehan Pipe Line Co. has contract for constructing Prairie Pipe Line Co. 4 and 6-inch line from Drumright pump station to newly acquired oil properties at Ingalls, Okla. Line will be about 20 miles long.

PORTLAND, OREG.—Clever Tools Inc. has been incorporated with $5000 capital by W. H. Frenzel, E. A. Frenzel and B. Withers.

BEAVER, PA.—Standard Steel Specialty Co., First avenue and Eleventh street, E. J. Wagner president, has let contract to Inland Construction Co., 5612 Penn avenue, for a 1-story shop building 120 x 160 feet.

FARRELL, PA.—American Sheet & Tin Plate Co., Frick building, Pittsburgh, has let contract to Wallace & Carley, South Dock street, Sharon, Pa., for a metallurgical laboratory 44 x 87 feet at Mercer Works.

PHILADELPHIA—Philadelphia Rust Proof Co., Howard street and Montgomery avenue, is installing additional equipment to increase its production of chromium-plated articles.

PHILADELPHIA—John Warren Watson Co., Locust and Twenty-fourth streets, manufacturer of automobile accessories, has given contract to the Wark Co., 1600 Walnut street, for a 1-story plant, 125 x 785 feet.

PHILADELPHIA—Marymore Cycle Corp. has been incorporated with $5000 capital to manufacture automotive parts and accessories by Abraham Marymore, 3943 Lancaster avenue, Philadelphia, Isaac Weinberg and Morris R. Weinberg.

SCOTTDALE, PA.—United States Cast Iron Pipe & Foundry Co. has given contract to the Austin Co. for a blacksmith and forge shop addition, 42 x 55 feet.

SHARON, PA.—Sharon Steel Hoop Co. will build a central gas house, boiler house and two boilers, and will electrify its 8 and 10-inch mills.

CHATTANOOGA, TENN.—Meehanite Metal Corp. has been incorporated with $50,000 capital by F. M. Robbins, Signal Mountain, and associates.

CHATTANOOGA, TENN.—Aluminum Foundry & Mfg. Co. has been incorporated with $100,000 capital by J. V. Trotter, 704 Cherry street, and others.

AMARILLO, TEX.—Panhandle & Santa Fe railroad plans extension of 30 miles from town of Panhandle through oil fields. F. A. Lehman is general manager western lines.

AMARILLO, TEX.—Geo. H. Greenan Co. has contract for construction of Marland Oil Co. 8-inch welded line, 28 miles long, from town of Panhandle to Marland leases in Hutchinson county.

AMARILLO, TEX.—Texas Co. has secured a tank farm site of 160 acres near Kings Mill in Panhandle oil field and plans to construct several 55,000-barrel steel storage tanks for storage purposes.

Refractories

FIRE CLAY BRICK
Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 45.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	43.00 to 46.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK
Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK
(Per Net Ton)

9 x 4½ x 2½	45.00

BLOOMING GROVE, TEX.—Cumpston-Griffin, Inc., has been incorporated by L. I. Griffin and F. B. Cumpston, to manufacture cotton gin attachments.

BROWNWOOD, TEX.—Humble Oil & Refining Co. is building an absorption gasoline plant near Cross Cut in the Blake oil field to cost $250,000 and handle about 3,000,000 cubic feet of gas a day.

DALLAS, TEX.—Electric Appliance Co., capital $150,000, chartered by M. E. Martin, 4516 Cole street, Louis Jacoby and W. R. Harris to manufacture electrical specialties.

DALLAS, TEX.—Austin Co. was recently awarded contract for two compressor station buildings, 294 feet long, for Lone Star Gas Co. at Joshua, Tex.

DALLAS, TEX.—Texas Airways, capital $60,000, chartered by R. M. Brooks, 4210 Haskell place, J. F. Riddle and V. A. Hamilton, to operate aeroplane stations and maintain repair shops, etc.

FORT WORTH, TEX.—Economy Electrical Supply Co. has increased capital from $25,000 to $50,000 to handle additional machinery.

FORT WORTH, TEX.—Fort Worth Steel & Machinery Co. has completed corrugated iron tank shop 68 x 80 feet as addition to its fabricating plant.

FORT WORTH, TEX.—Gulf Pipe Line Co. has tentative plans for an 8-inch oil pipeline from Panhandle, Tex., field to Ranger pump station, 250 miles. C. S. Youngblood, W. T. Waggoner building, is purchasing agent.

WORT WORTH, TEX.—Trinity Valley Iron & Steel Co. is completing foundry building, 50 x 150 feet, also 2-story pattern shop and storage room, 40 x 90 feet. Cupola type iron foundry and sandslinger equipment is being installed. C. W. Cauthron is general manager.

HOUSTON, TEX.—Texas Pipe & Supply Co., capital $20,000, incorporated by Michael Lewis, J. J. Greenberg and Morris Swartz.

HOUSTON, TEX.—L. L. Lomar, 1607 Main street, is making plans to manufacture a hydraulic shock absorber for autos.

HOUSTON, TEX.—Missouri, Kansas & Texas railroad plans erection of combination freight terminal and warehouse, 191 x 280 feet, six stories and costing approximately $1,000,000.

H. E. McGee, Denison, Tex., is general manager.

PORT ARTHUR, TEX.—Standard Brass Mfg. Co. will build machine shop 50 x 110 feet, one story, on West Fourth street.

PORT ARTHUR, TEX.—Gulf Coast Machinery & Supply Co., R. M. Tryon, manager, 305 Orange street, will build a 1-story brass foundry and machine shop.

SAN ANGELO, TEX.—San Angelo Airways, capital $5,000, incorporated by Z. A. Bender, Bessie M. Eddleman and Otha Eddleman to operate aeroplane station and deal in accessories.

VERNON, TEX.—Natural Gas & Construction Co., capital $10,000, incorporated by F. W. Grogan, J. B. McCormick and R. D. L. Killough to build and operate natural gas pipelines.

SEATTLE—Teufel & Carlson, contractors, have contract to rebuild elevators and magnesite storage bins for Great Northern railroad at Seattle.

SEATTLE—Northwest Rolling Mills has had plans made by J. T. Thorpe Co., Stuart building for two heating furnaces each with 60-foot stack for its new plant being built by the Austin Co.

BEAVER DAM, WIS.—The Hutter Construction Co., Fond du Lac, Wis., has taken the contract to build an addition, 100 x 100 feet, 2-story, for the Malleable Iron Range Co. here.

FOND DU LAC, WIS.—J. E. Burke, 341 North Park avenue, manufacturer of metal weather strip, will build a plant costing about $30,000. The contract has been taken by William J. Friedrich, 31½ Fulton street, Oshkosh, Wis.

MILWAUKEE—C. A. Kleppe & Son, 1026 First street, have taken the contract to build several additional stories on the plant of the E. B. Tonnsen Sheet Metal Works at 113 Harmon street.

MILWAUKEE—Contracts are about to be let by the Milwaukee branch of the Packard Motor Car Co. for a service addition, 70 x 200 feet, 1-story, to its branch house at 3501-3515 Grand avenue. N. P. Hansen is manager.

MILWAUKEE—Refrigerating and other machinery will be needed for a new sausage and meat products plant, 90 x 100 x 100 feet, 1 and 2-stories and basement, to be built at Fourth and Poplar streets by C. T. Gross, 3020 State street, at a cost of $75,000.

MILWAUKEE—Articles of incorporation have been filed by the Reed-Waite Co., 1001 Cold Spring avenue, Milwaukee, to manufacture chrome nickel piston pins and other parts and materials for automobiles, trucks, tractors and aircraft. The incorporators are W. J. Reed, M. A. Jacobson and John D. Waite.

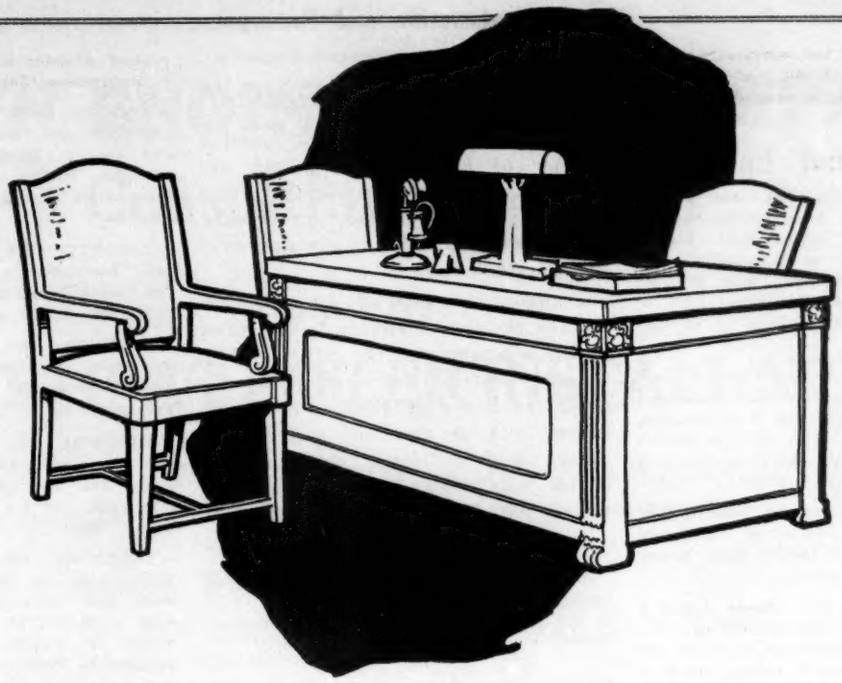
OSHKOSH, WIS.—Articles of incorporation have been filed by the Farrow & Muza Sheet Metal Co., capital stock $10,000. Incorporators are L. J. Muza, A. M. Farrow and M. B. Rand.

OSHKOSH, WIS.—Contracts have been let by the Wilkin-Challoner Co. for a gray iron foundry addition, 82 x 112 feet, and equipment is now being purchased. The concern manufactures machinery for saw mills and woodworking plants.

RACINE, WIS.—Apex Gate Co., manufacturer of iron fencing and gates, has leased a plant at Pentwater, Mich., for additional production after remodeling.

WEST ALLIS, WIS.—The capitalization of the Pioneer Mfg. Co., 526 Fifty-second avenue has been increased from $25,000 to $50,000. Some enlargement of the plant will be made.

WISCONSIN RAPIDS, WIS.—The American



EXECUTIVES

are you aware that—

steel is rapidly replacing wood in the finest of office furniture?

INVESTIGATE! An examination of metal business furniture will reveal investment values unmatched by equipment made of other material. The lustre of beautiful finishes; the striking designs; the free smooth-sliding drawers, and the sturdy durability of fine steel construction will instantly appeal to you.

MANSFIELD METAL FURNITURE SHEETS are used extensively as the basic material in the products of the largest manufacturers of Metal Office Furniture. They are unusual in quality due to scientific treatment of the metal in the open hearth furnace and the Mansfield distinctive method of pouring, and the finish is remarkably uniform.

We also manufacture Automobile Sheets, "Wabik Metal" Sheets for Vitreous Enameling, Milk Can Stock, Pickled and Annealing Stock for Kitchen Utensils. SHEET BARS and INGOTS.

Mansfield Sheet & Tin Plate Company
Mansfield, Ohio

District Sales Offices:

12-237 General Motors Bldg., Detroit, Mich.
1372 Wrigley Bldg., Chicago, Ill.
410 Pierce Bldg., St. Louis, Mo.
1106 National City Bldg., New York, N. Y.
2002 Union Trust Bldg., Cleveland, Ohio
1504 West Venango Street, Philadelphia, Pa.

Contributing Member
SHEET STEEL
TRADE EXTENSION COMMITTEE

District Sales Offices:

1403 Merchants Bank Bldg., Indianapolis, Ind.
1020 Union Trust Bldg., Cincinnati, Ohio
640 Endicott Bldg., St. Paul, Minn.
237 Rialto Bldg., San Francisco, Calif.
509 Wilcox Bldg., Los Angeles, Calif.
1426 L. C. Smith Bldg., Seattle, Wash.

Carbonic Machinery Co. has increased its capital stock to $450,000, consisting of 2,500 common and 2,000 preferred shares of $100 par value each.

Construction and Enterprise

CALGARY, ALTA.—The McKinnon Expansion Engines Ltd. has been incorporated to manufacture machinery, engines, tools, boilers, and carry on business as millwrights, iron founders, metal workers, etc., with $200,000 capital stock, by Wilfred McKinnon, John E. Taylor, John C. Ayer and others all of Calgary.

DRUMHELLER, ALTA—The Mov-E-Z Jack Co. Ltd. has been incorporated to manufacture and deal in machinery, tools, engines, electrical devices, etc., with $50,000 capital stock, by Garnet N. Coyle, Erland J. Fletcher, Willard R. Sandercock and others.

EDMONTON, ALTA.—Alberta Power & Coal Co. Ltd. has been incorporated with a capital of $200,000, by Henry E. Daniel, Mary Robinson, Ethel Gordon and others.

EDMONTON, ALTA.—The Alberta Power & Coal Co. Ltd., has been incorporated to carry on general mining business and to build and operate electric development plants, smelters, milling and refining plants, etc, with $200,000 capital stock, by Henry E. Daniel, Mary Robinson, Ether Gordon and others.

CALGARY, ALTA.—The Canadian Bryan Steam Tractor Co. Ltd. has been incorporated to manufacture steam and other tractors, machinery, tools, etc., with $200,000 capital stock; by William A. Murphy, of Calgary, Alta.; William H. Journey and Howard P. Journey of Vulcan, Alta.

TRAIL, B. C.—Associated Mining & Milling Co. has been incorporated to mine, smelt and refine ores, metals and minerals, with a capital of $100,000, by Ernest Mason, William J. Wagstaff, Harold Vickers and others.

BELLE RIVER, ONT.—Contracts have been awarded for waterworks plant here. Bids are now being received by M. Forget, village clerk, for pumps and other equipment.

CHATHAM, ONT.—The Chatham Battery & Electric Service, Ltd., has been incorporated, with $40,000 capital stock. Provisional directors, James A. McNevin, William G. Kerr, Doreen Bowers and others.

GOWGANDA, ONT.—The Tonopah Mining Co. is having plans prepared for a concentrating mill here.

HAMILTON, ONT.—Stuart & Sinclair, 75 James street south, have general contract for alterations and additions to Gage avenue pumping station, at a cost of $70,000. Equipment will be purchased later.

KINGSTON, Ont.—The Monarch Battery Mfg. Co., Ltd., has been incorporated with $500,000 capital stock, and 10,000 shares without par value. Provisional directors, Arthur B. Cunningham, Cyril M. Smith, Grace A. McLean and others.

LARDER LAKE, ONT.—The Canadian Associated Goldfields Mining Co. will be in the market soon for a number of electric motors and an air compressor.

ORILLIA, ONT.—A. H. Oliver proposes to enter into the manufacture of a motor ice cutting machine here.

OTTAWA, ONT.—Ottawa Valley Mines, Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals, with a capital of $2,000,000. Provisional directors are Alexander D. Crooks, Alan C. MacRobie, Charlotte Pennington, and others.

PORT ARTHUR, ONT.—The Ontario hydro-electric commission will start work immediately on power development plant at Camp Alexander on the Nipigon river.

TILLSONBURG, ONT.—The Regal Oil Refinery Co. will start work at once on an oil refinery here to be completed by August, the first unit of a three unit plant. Cost of buildings and equipment for complete plant will be approximately $1,000,000, according to a statement issued by W. B. Brooks of Toronto, president.

TIMMINS, ONT.—Great Northern Power Corp. Ltd. has been incorporated with a capital of 12,500 shares of no par value. Provisional directors are Sydney E. Wedd, Bruce V. McCrimmon, John G. Middleton, and others.

TIMMINS, ONT.—The Ideal Hardware Co. Ltd. has been incorporated to manufacture and deal in hardware, with a capital of $40,000. Provisional directors are Hector Chateauvert, Charles A. Raiche, and Albert Pelletier.

TORONTO, Ont.—Farrell Lorrain Mines, Ltd., has been incorporated to mine, smelt and refine ores, metals and minerals, with $2,000,000 capital stock.

TORONTO, ONT.—Auto Starter Co., Ltd., has been incorporated with $40,000 capital stock. Provisional directors, Donald H. McCannell, Ross E. Neal and Elda I. Jordan.

TORONTO, Ont.—Kanned Kamp Fire Co., Ltd., has been incorporated to manufacture stoves and other articles, with $50,000 capital stock, by L. R. MacTavish, Lillian D. Dillon, Mary A. Corbett, and others.

TORONTO, ONT.—Consolidated Feldspar Mines Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals, with a capital of $100,000. Provisional directors are Ewart R. Lynch, John B. Allen, Douglas J. Nickle, and others.

TORONTO, ONT.—Cooper Gold Mines, Ltd., has been incorporated to mine, smelt and refine ores, metals and minerals, with $2,000,000 capital stock. Provisional directors, Richard S. Denig, Edmund J. MacDonald, Emil A. Larsen and others.

WINDSOR, ONT.—Bids are being received by W. A. Hanrahan, secretary of water commissioners, for 12,000,000-gallon per day centrifugal pump, both motor and condensing steam drive, for 175-foot lift.

MONTREAL, QUE.—Union Electric Supply Co., Ltd., has been incorporated, to manufacture electric supplies, with $250,000 capital stock, by Harry Blanshay, Lionel A. Sperber, Samuel Chait, and others.

MONTREAL, QUE.—The H. F. Clayton Corp. Ltd. has been incorporated to manufacture oil burning furnaces, engines, boilers, machinery, etc., with $49,000 capital stock; by Francis J. Laverty, Charles A. Hales, Shirley G. Dixon and others, as provisional directors.

MONTREAL, QUE.—P. McCuaige Ltd. has been incorporated to manufacture machinery, motors, etc., with a capital of 500 shares without par value, by Francis G. Bush, Herbert W. Jackson, Alexander G. Yeoman and others.

MONTREAL, QUE.—The Chemical Engineering Equipment Co. Ltd. has been incorporated to manufacture chemical machinery, equipment, boilers, engines, tools, etc., with $50,000 capital stock, by Francis J. Laverty, Charles A. Hale and others as provisional directors.

Use Street and Number

A user of this department found a number of his letters returned undelivered. He sent some to this office with a complaint that information was given before the companies were really established.

Examination showed he had addressed the letters simply to the name of the company and the city in which it was located. Yet each item contains the name of some person connected with the company and his address, which will insure delivery. This writer was overlooking a vital point in getting his message across.

Do you make the same error?

Use the street address, which is the point of contact.

New Trade Publications

PUMPS—Goulds Pumps Inc., formerly the Goulds Mfg. Co., Seneca Falls, N. Y., has issued a bulletin describing uses of its pumps for unusual service under conditions of heat, cold, varying fluidity, changing pressures and similar conditions. Versatility of pump service is the text and illustrations show how some problems have been solved.

TRAFFIC SPOTS—Use of brass markers embedded in the roadway as traffic guides to supplant painted lines is described in a well illustrated bulletin by the Bridgeport Brass Co., Bridgeport, Conn. Brass cups of two sizes, small for pedestrian traffic and large for motor traffic, are sunk into the road surface and make permanent guides, doing away with necessity for repainting. Demand from industrial plants for this form of marker indicates a large field for it inside plants, as well as on highways.

LIQUID FUEL VALVE—A bulletin by the William M. Bailey Co., 508 Bakewell building, Pittsburgh, describes its regulating valve for accurate, measured regulation of flow of fuel oil, tar, water and other liquids. Minute adjustment of orifice through a special form of needle valve and orifice gives a close degree of adjustment of liquid passing the valve.

POWER FACTOR—Reducing the mathematics of power factor improvement to simple arithmetic the General Electric Co., Schenectady, N. Y., has issued a publication presenting in simple and systematic way authoritative information on means for such improvement in industrial plants. Equipment manufactured by the company, designed for this purpose is described. Tables and graphs give much information.

FREYN ENGINEERING COMPANY

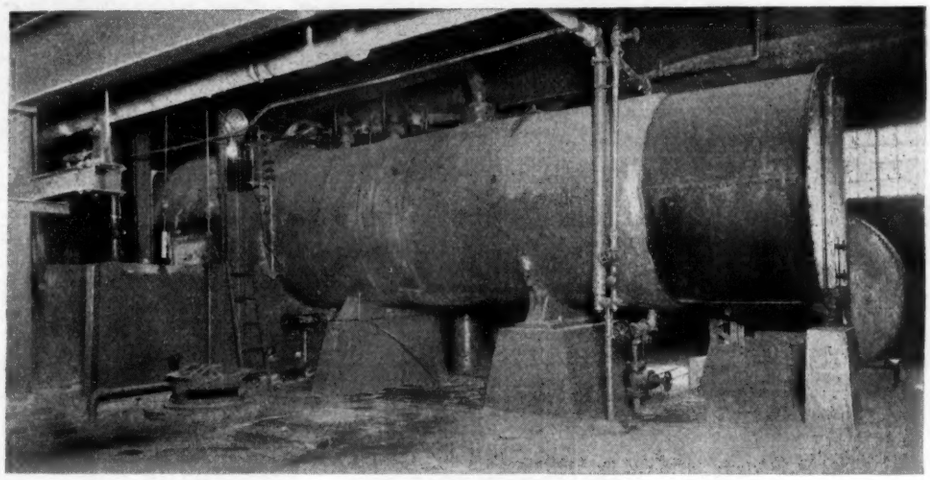
Consulting Engineers

Specialists in

WASTE HEAT BOILER INSTALLATIONS

The WILLCOX-HAYES (Patent Applied for) Marine Type High Velocity Waste Heat Boilers are an advance in performance over anything previously done in this field.

1. Operation at 120% of rating.
2. Fan horse power requirements reduced to 6% of output.
3. No air infiltration.
4. Net B.T.U. per ton of steel at open hearth reduced to under 5,000,000.
5. Large quantities of steam at low capital and operating cost.



Installations:

Carpenter Steel Company, Reading, Pa.
National Malleable & Steel Castings Company, Melrose Park, Illinois
The Bettendorf Company, Bettendorf, Ia.
United Alloy Steel Corp., Canton, Ohio
Tennessee Coal, Iron & Railroad Co., Fairfield, Ala.

At one plant using these boilers:

1. Heats increased from 19½ to 21½ per week.
2. Coal fired boilers reduced by 50%.
3. Power costs per ton net metallic mix reduced by 26%.

FREYN ENGINEERING COMPANY will investigate the feasibility of installation, will quote on the complete installation inclusive of foundations, flues, boilers, lines, fans, pumps and heaters, on a specific guaranty of steam output.

Office: 310 South Michigan Avenue, CHICAGO

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	33	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

TREADS AND COUPLINGS

Butt weld

⅛ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon	application
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¼-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$ inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c

SIVYER CASTINGS

DEPENDABLE

The crown-block illustrated is fitted to the top of this gin-pole to hold the guy wires and prevent the pole from splitting.

Gin-pole crown-block cast in Sivyer Electric Steel.

Machining and Grinding Tools Tell the Cost of Extra Smooth Finishes

Many manufacturers are forced to provide castings with an extremely smooth finish. The gin-pole crown-block, shown above, is ground by its user until it has almost the appearance of plated steel. After that it is given several coats of paint. Unless a casting is free from surface sand the cost of such dressing up becomes excessive. Surface sand, even though unnoticed by the eye, plays havoc with machining and grinding tools—and sends them on frequent trips to the tool room. And that is another reason why manufacturers who must have unusually smoothly finished parts turn to Sivyer Electric Steels. With sand-free Sivyer Castings machining and grinding costs are not excessive—and Sivyer Steel provides the sound interior strength that must be beneath the smoothly finished surface.

The sharply varying sections of such a casting as the one shown are breeders of "shrinks"—and "shrinks" cause failure in service. To our knowledge, not one casting — of the type shown on this page—has ever failed in service.

If you're troubled with high machining costs—or if you demand better service from your castings in the field, we will make recommendations without obligating you in any way. Just *Send Blue Prints of the Job.*

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

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